NATIONAL CAR BUILDER

VOLUME XIV.
NUMBER 3.

DEVOTED TO THE INTERESTS OF RAILWAY ROLLING STOCK.

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MARCH, 1883.

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CHICAGO:
144 N. Clark Street.

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Will be ready in May next. For Contents, Method of Distribution, etc., etc., see page 26.

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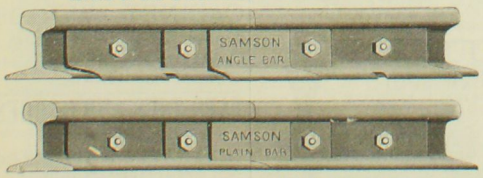

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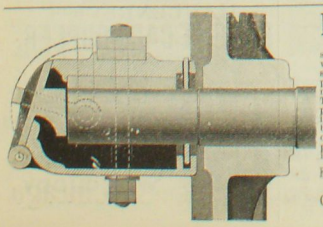

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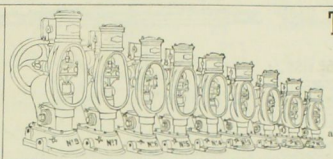

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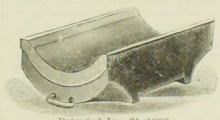

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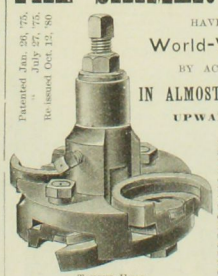

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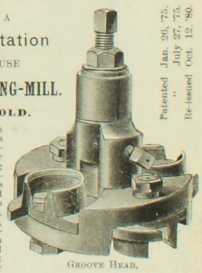

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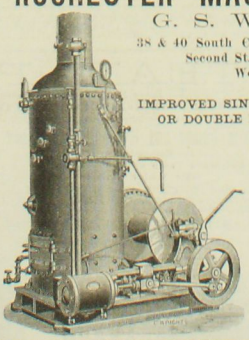

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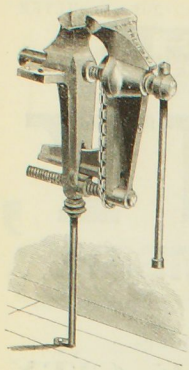

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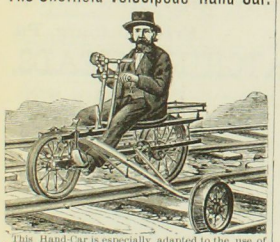

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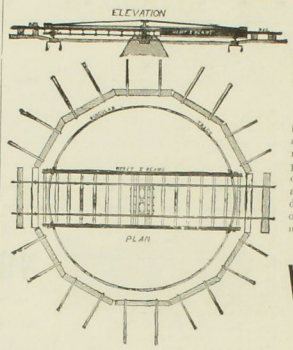

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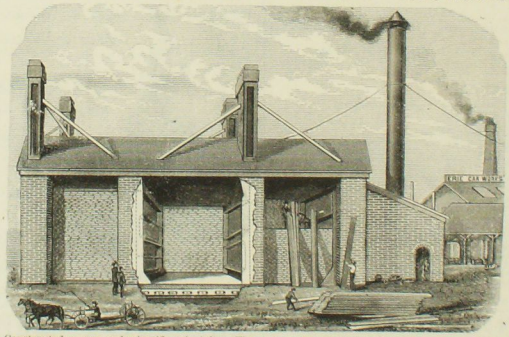

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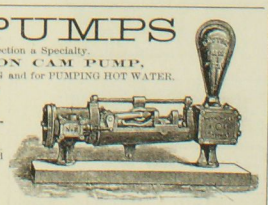

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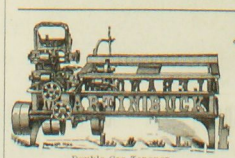

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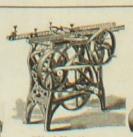

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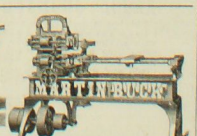

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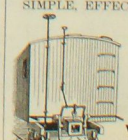

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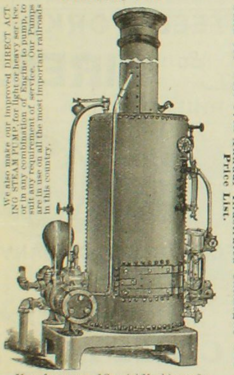

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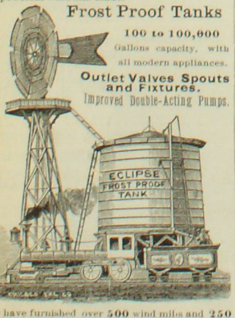

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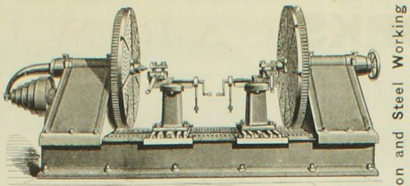

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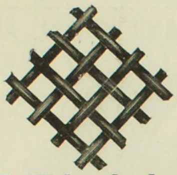

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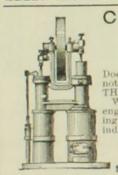

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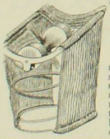

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Spiral Spring four and a half inches high, four inches in diameter, fastened to a malleable iron top, containing a roller with bristles transversely inserted, the sides of the spring covered with felt and having one of the lips formed of the same material; when in position the outer edges of the concave roller are pressed against the surface of axles, the motion of which causes the roller and bristles to revolve and to distribute the oil in proportion to the velocity of the axles while the sides of felt saturated with oil act as "wipers" and lubricators; and the end lip performs similar duties, preventing waste of oil and the entrance of grit and dust.

J. E. SULLIVAN & CO.,

WHOLESALE DEALERS IN

RAILWAY SUPPLIES, PIG IRON, BLOOM AND ORE, OLD RAILS,
Car Wheel Axles, &c. Scrap Iron, Steel, Borings, Turnings,
Metals of all kinds.

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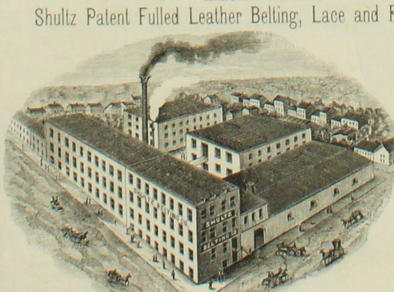
SHULTZ BELTING CO.,

Cor. Easton and Barton Sts., St. Louis, Mo.

MANUFACTURERS OF

Shultz Patent Fulled Leather Belting, Lace and Picker Leather.



OUR Belting is made of Leather tanned on the surfaces only; the interior (which is the fibre and strength of the hide) is not tanned, but Rawhide fulled and softened by our patent process. Our Belting is more pliable, and hugs the pulley better and transmits more power than any other belt. It does not pull out at the lace holes or rivets. It stretches less than any other belt. It works equally well for the largest Driving Belts or for the fastest running machinery and smallest pulleys. Our LACE LEATHER is made of Rawhide, by our patent process, without any tanning, and is stronger, and will wear better than any other. We also make the best Picker Leather and Belt Grease in the country.

Satisfaction guaranteed. Specifications of Railway Companies solicited.

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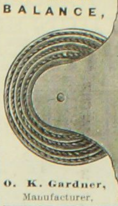
Utilles Baird, 75 Water St., Pittsburgh, Pa.
Philadelphia House, 140 N. Third St., JAMES GARNETT, Manager.
Curtis & Co. Mfg. Co., 40 Franklin St., Chicago, Ill.

Agents in all Cities.

CAR WINDOW BALANCE,



for Passenger Coaches, Sleeping and Parlor Car Windows, consisting of Cone and Coil Spring with Wire Cord, balancing the weight of sash. Noiseless in operation, and placed entirely out of sight. Adopted by many of the leading roads. No car complete without them.

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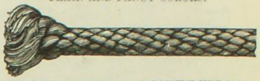
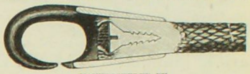


BELL-CORD COUPLINGS.



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SILVER LAKE CO.
HENRY W. WELLINGTON, Agent, BOSTON.

STEEL CAR PUSHER

Made entirely of STEEL.

One Man with it can easily move a loaded car. *Will not slip on ice or grease.* For sale by

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RAILROAD SUPPLIES,
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STANDARD WEIGHT LAP-WELD WROUGHT-IRON

PIPE,

Brass and Iron Goods

For Steam and Gas-Fitters and Engine Builders

Cast Iron and Malleable Iron Fitting

STEAM PUMPS,

Hollow Stay-Bolt Iron, Babbitt Metal, &

RAILWAY SUPPLIES.

H. L. LEACH,

NEW ENGLAND AGENT

FOR

Nathan & Dreyfus—Oilers and Lubricators an Freidmann's Injectors and Ejectors; C. W. Pickering & Co.—Locomotive and Car Springs.

Boiler Tubes, Plate Iron and Steel Boilers, Tanks Machinists' Tools, Locomotive Frames, Crank-Pins Axles, Head Lights, Steam Gauges, Car Wheels Etc., Etc.

77 WATER STREET, BOSTON, MASS

THE STANDARD LUBRICATING OIL

OF AMERICA

FOR RAILROADS.

GALENA

ENGINE, COACH AND CAR OIL.

Gravity, 26°, 27°, 28°, 29°. Cold Test, 10° to 15° below zero.

No freezing in coldest weather, and entire freedom from hot journals at any time, as its exclusive use upon a majority of the leading railroads has demonstrated.

Showing Better Results than any Oil Extant.

REFERENCES FURNISHED ON APPLICATION.

GALENA OIL WORKS (Limited),
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BRADLEY'S

Insulated Air Covering

(Made of Asbestos and Soft Feltings.)

For Boilers, Steam, Hot-Air, Gas and Water Pipes. To prevent the Condensation of Steam and the contents of Gas and Water Pipes from freezing.

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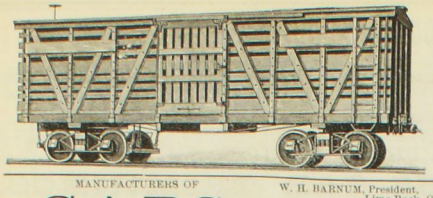

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LAFAYETTE, IND.

Freight and Caboose Cars of all kinds. Hand and Push Cars.

Warehouse Trucks and Baggage Barrows. Car Wheels and Castings.

B. F. MASTEN, Prest. C. E. CORE, Supt.

MANUFACTURERS OF

CARS,

Car Wheels, Truck Wheels and Tender Wheels,

Hammered Car and Locomotive Axles and General Forgings.

Car Wheels Fitted to Axles.

Car Castings, Bridge Castings and Car Brasses.

Mining Cars, Mining Wheels, Etc.

W. H. BARNUM, President, Lime Rock, Conn.

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The Ensign Manufacturing Company

(CAR WORKS FOUNDRIES AND STEAM FORGE).

DAILY CAPACITY, - - - - - - - - - - - 15 Box Cars, 250 Car Wheels, 80 Axles.

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CAR AND FOUNDRY CO.,

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MANUFACTURERS OF

FREIGHT CARS, CAR WHEELS AND CASTINGS OF ALL KINDS.

BRADLEY CAR WORKS, WORCESTER, MASS.

ESTABLISHED 1833.

MANUFACTURERS OF EVERY DESCRIPTION OF

RAILWAY CARS.

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MICHAEL SCHALL & ARTHUR KING, Proprietors,

MANUFACTURERS OF

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SPECIAL ATTENTION GIVEN TO CAR REPAIRS.

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HARRISBURG CAR MANUFACTURING CO.

MANUFACTURE

PASSENGER, MAIL, BAGGAGE,

BOX, GONDOLA, COAL

AND ALL OTHER KINDS OF

RAILROAD CARS;

Railroad Car Wheels and Castings, Bridge and Rolling Mill Castings, Bridge Rods, Bolts and

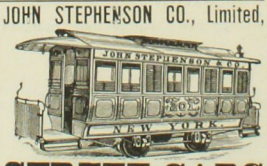
RAILROAD FORGINGS.

GILL CAR M'F'G CO.,

Columbus, Ohio.

Make the best CARS and WHEELS.

JOHN STEPHENSON CO., Limited,



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And Omnibuses,

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CAR SEATS.

GEORGE BUNTIN & CO.,

SOLE MANUFACTURERS OF

Buntin's Patent Car Seats,

AND NICKEL PLATED ARM CAPS, IN USE ON RAILROADS GENERALLY.

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Freight, Coal, Dump, and Mine Cars. Capacity six cars per day.

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PARDEE, SNYDER & CO. (Limited), Proprietors.

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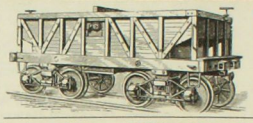

YOUNGSTOWN CAR WORKS

Railroad Freight Cars, Broad and Narrow-Gauge.

MILLIKEN, BOYD & CO.,

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W. C. ALLISON,

Thirty-Second and Walnut Streets, Philadelphia,

Manufacture all kinds of Wrought and Cast Iron Work for Cars, Buildings and Bridges.

Every description of Railroad Cars, Bolts, Nuts and Washers. Also manufacture, from the best quality of Iron, Gas, Steam and Water Pipe. Iron and Steel Lap-Welded Boiler Tubes.

LOCOMOTIVE BOILER TUBES A SPECIALTY.

LITCHFIELD CAR AND MACHINE COMPANY,

LITCHFIELD, ILLINOIS,

Manufacturers of all kinds of Passenger and Freight Equipment, both Wide and Narrow Gauge.

CAR WHEELS A SPECIALTY IN THE MACHINERY DEPARTMENT.

Especial attention is given to furnishing Hoisting Engines, Pit Cars, Dumps, etc., etc., for Coal Mines, as well as building Stationary Engines and Boilers, and General Brass and Sheet-Iron Work.

PENINSULAR CAR WORKS,

DETROIT, MICH.,

Operating Peninsular Car Works, Detroit Steam Forge and Adrian Car Works.

FREIGHT CARS OF EVERY DESCRIPTION.

WHEELS AND CASTINGS, HAMMERED IRON AXLES.

WORKS AT DETROIT AND ADRIAN, MICH.

CLARK & SMITH,

MANUFACTURERS OF

BAND SAWED MAHOGANY,

AND DEALERS IN

CABINET WOODS AND VENEERS

FOR CAR WORK.

Cor. Beverly and Travers Sts., - - BOSTON, MASS.

MAHOGANY

ESPECIALLY PREPARED FOR

CAR-BUILDERS,

IMPORTED AND MANUFACTURED BY

C. C. HOUGHTON & SONS,

No. 6 Howard Street, New York.

Yards Foot of Eighth Street, East River.

THE CANTON CAR COMPANY,

MANUFACTURERS OF

ALL KINDS OF FREIGHT CARS,

CAR, BRIDGE AND RAILROAD CASTINGS,

Capacity, Ten Cars per Day CANTON, OHIO

Manufacturers of Cordrey's Patent Rotary Dumping Cars, Smith's Imperial Feed Mills, &c. Repairing of all kinds promptly done.

Car Wheels AND CASTINGS.

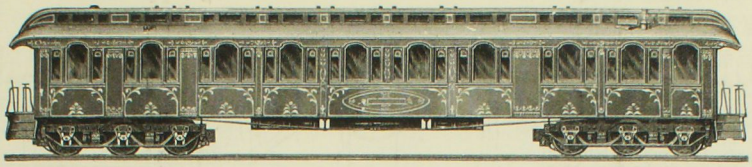
RUSSEL WHEEL & FOUNDRY CO.

DETROIT, MICH.

Logging Cars AND Car Trucks.

INDEX TO ADVERTISEMENTS IN THE National Car-Builder.

THE NATIONAL CAR-BUILDER.



DEVOTED TO THE INTERESTS OF RAILWAY ROLLING STOCK.

VOLUME XIV
NUMBER 3.

MARCH, 1883.

SINGLE NUMBERS, TEN CENTS.
$1.00 PER ANNUM.

Miscellaneous Items.

THE New York, Lake Erie & Western shops at Jersey City are building two 53-foot passenger coaches and two 48-foot baggage cars.

THE Rogers Locomotive Works, at Paterson, N. J., are engaged on 5 small engines for surburban traffic for the Illinois Central road. They will be fitted with pilots at both ends.

MR. WM. JOHNSON, Master Car-Builder in charge of the New York Central & Hudson River shops in Buffalo, died Jan. 21, aged 61 years. He had been with the company for many years.

THE Manchester, New Hampshire Locomotive Works are filling an order for 20 locomotives for the Oregon Railroad and Navigation Company. They will be packed in parts and shipped by water.

THE Middletown Car Works, at Middletown, Dauphin County, Pa., employ a force of 200 men, and turn out between 30 and 40 freight cars per week, some of which are exported to South America and the West Indies.

THE Lehigh Valley Railroad Company is experimenting with a new patent lamp to light up the steps of their cars. The lamps are placed under the steps and so far have worked well in affording passengers light to get on the cars.

THE New Orleans, St. Louis & Chicago Railroad has lately built at their shops in Wrater Valley, Miss., a hospital car, to be used when accidents occur. It is furnished with every convenience, and medical and surgical instruments.

THROUGH trains are now running between San Francisco and New Orleans, a distance of over 2,400 miles. A few years ago the prediction that this would be done would have been laughed at; now the fact has almost ceased to attract attention.

THE Grant Locomotive Works, at Paterson, N. J., are building 10 Mogul engines, with 18x24 cylinders and 48-inch drivers, for the New York & New England road; and 45 consolidation engines, 20x24 cylinders and 44-inch drivers, for the Pennsylvania road.

A COKE car has been built at Harrisburg, Pa., for Robert Hare Powell. It is 35 feet in length and 11 feet 4 inches in height, and has a capacity of 24 tons of coke. There are gates in the sides and traps in the floor, which admit of the cargo discharging itself with little difficulty.

AN engineer of the Rhenish Railway, which has had considerable experience in steel rails, has made a calculation, according to which the average duration of such rails, when 24 trains pass over them daily, is 30 years, while that of the iron rails, with a traffic of 17 trains, is 11 years.

THE Allen Paper Car Wheel Company have contracted with the Northern Pacific Railroad to furnish wheels for their entire passenger equipment. This is not merely for their present equipment, but for all sleeping, passenger, baggage and postal cars, and for locomotives and tenders to be built.

MR. EDWARD STUDLEY, Master Mechanic of the Northern (New Hampshire) Railroad, died at his residence in Concord, N. H., Feb. 11, aged 58 years. He was at one time connected with the Lake Shore & Michigan Southern road, and had also served as Master Mechanic of the Concord Railroad.

THE quantity of Bessemer steel rails produced during 1882 by the fourteen works in the United States was 1,334,349 tons. Allowing 100 tons per mile of track, which is a very liberal estimate, this output would lay 13,343 miles of railway main line. These figures do not include iron rails, rails made from imported steel blooms, or open-hearth rails.

LUMBER, it is said, is now manufactured from straw, the standard size being thirty-two inches in width, twelve feet in length, and the thickness the same as the average of surfaced boards. One ton of any kind of straw will yield 1,100 feet of board that may be handled as ordinary ones. This lumber can be produced and sold in competition with wide walnut at about one-half the price of the latter.

MR. SAMUEL HARLAN, Jr., President of the Harlan & Hollingsworth Co., of Wilmington, Del., died in Vienna, Feb. 6, aged 76 years. Mr. Harlan has been engaged in building ships and railroad cars for many years, and leaves a large fortune, chiefly invested in the business. He has not taken an active part in business, however, since 1880, when he started on the European tour just closed by death.

A recent English invention consists of a locomotive having two separately-driven or uncoupled pairs of driving and carrying wheels. It has outside cylinders, worked by steam direct from the boiler, for independently driving one pair of the wheels, and a single inside cylinder placed in the central line of the engine, and worked by the exhaust steam from the outside cylinders to independently drive the other pair of wheels.

W. H. MALSON, North Pownal, Vt., has patented an invention for heating railway trains without steam or stoves. By a peculiar arrangement of the locomotive, the cold air is taken in by the momentum of the train, furnishing the necessary draft through the fire box, and is distributed to the cars by air pipes. A register under each seat, under the control of the passenger, regulates the admission of heat as required.

THERE is a stationary engine at the Baldwin Locomotive Works which was built by Mr. Baldwin nearly fifty years ago. The guide-bars are of cast-iron, and have been in use ever since the engine was built. Those who have noticed the bars for many years past, say that no preceptible wear is apparent, and that they will probably last a long time yet. The engine is running regularly, and drives a part of the machinery in the boiler shop.

THE United States Rolling Stock Co. have decided to concentrate their car-building works at one point, and have purchased for this purpose 100 acres of land in the Calumet region in South Chicago, upon which new car works will be erected equal to any in the country. The construction of the new works will be commenced very soon, and the cost of their erection will be defrayed by the sale of the present Chicago and Urbana properties of the company.

AN effort will be made to secure for the Chicago Exposition a collection of old railway curiosities in the way of machinery and other appliances, for the purpose of illustrating the various stages of progress that have been made. Arrangements will be made for the transportation of such articles to Chicago and return. Any information on the subject should be addressed to E. H. Talbott, Secretary of National Exposition of Railway Appliances, Grand Pacific Hotel, Chicago.

THE Allston, Mass., car shops of the Boston & Albany road are building 200 Blue Line box cars, 4 passenger coaches and 2 drawing-room cars. Fifteen passenger coaches are also being repaired and repainted. The leather seat cushions and backs will be replaced by plush. The passenger cars of the road are each of them provided with a bar, axe, saw, mallet and chemical fire extinguisher inside, and also with a box of tools underneath the car floor for use in case of accident.

IT is said that a locomotive is being built for the New York, Lake Erie & Western road, in which Mr. Mallett's device for consuming smoke is to be tested. In order to give the invention a thorough trial, a trip across the continent will be made. There is to be no smoke-stack on this locomotive, and in its place is to be a man-hole merely. The air used to condense the steam is employed for heating and ventilating cars, being delivered through a conduit which, with coupling ends, passes along beneath the cars.

THE Westinghouse Air Brake Company, of Pittsburg, has arranged to take the exclusive charge of manufacturing and selling the metallic packing of the United States Metallic Packing Company, of Philadelphia, for use on railroads. The Westinghouse Company will also receive orders for metallic packing for stationary and marine engines, steam hammers, etc. The United States Metallic Packing Company agrees to protect all purchasers of this packing and to uphold its exclusive right to furnish it by such legal proceedings as may be necessary.

THE shops of the New York & New England road, at Norwood, Mass., are booming with work under the new master mechanic, Mr. Ross Kells, late of the "Nickel Plate." Eight engines are in for repairs, and the entire passenger equipment is to have M. C. B. standard axles and Spear stoves. The new standard color for passenger cars is Tuscan red. The road has ordered 10 moguls and 2 eight-wheel engines from the Grant Locomotive Works, and 2 passenger engines from the Rhode Island Works. Mr. Kells has an excellent reputation for executive ability, and is making his mark on this road.

THE Marshall Car & Foundry Co., of Marshall, Texas, was started in 1875 with a capital of only $10,000. The company now has an invested capital of $140,000, and will soon erect a blast furnace at a cost of $50,000, and turn out its own pig iron from Texas ores. The works have a capacity of 800 car wheels per month, besides the building of a large number of freight cars for the Texas & Pacific and the International & Great Northern roads. In the busy season nearly 400 men are employed in the foundry, machinery and car departments. The officers of the company are Chas. Cobb, President, Brooklyn, N. Y., and John F. Dickson, Vice-President and General Manager, Marshall, Texas.

TREE PLANTING by railroad companies formed the subject of an interesting paper recently read at the American Forestry Congress, at Montreal, by Professor Hough. It was stated that since there were in the United States about 100,000 miles of railway, the advisability of tree planting by railway companies for construction and maintenance, was an important question, from 2,200 to 3,000, and even 3,500, ties being used in a mile of rails. The average duration of rails is from five to eight years, and consequently from 30,000,000 to 50,000,000 a year will be required for 100,000 miles of railway. Putting 500 as the product of an acre of woodland, from 60,000 to 100,000 acres will have to be cut every year, and as it takes thirty years for a tree to grow to the right size, the railways will require from 2,000,000 to 3,000,000 acres (or 3,126 to 4,687 square miles) of forest to keep up the supply.

THE templet system for securing interchangeability of parts has been brought to great completeness at the Baldwin Locomotive Works. The first templet used in the works was made by the superintendent, Mr. Edward Longstreth, shortly after he entered their service as an apprentice, 25 years ago. It was applied to cross-heads, and since then the system has been extended so as to include all the interchangeable parts of engines, until the completeness of gauges and templets at this establishment is unequaled by any other in the world. Every piece of an engine is brought to size by a perfectly reliable templet or gauge, which is sent to the tool room every week to be examined, tested and corrected. The testing is done by a measuring machine which will measure one ten-thousandth part of an inch. As an illustration of the advantages of this system in locomotive work, an order was received at the works for 112 pieces, to repair an engine damaged in an accident on a certain road. The greater part of the order was filled and the pieces shipped on the day the order was received, and the rest of the pieces within three days. This was done five years ago, and the facilities for filling similar orders at these works are better now than they were then.

THE following description of two new parlor cars recently constructed for the Canadian Pacific Railway is from the Montreal *Witness*:

"Their exterior is of very highly polished mahogany with very elegant gilt ornamentations, the exceedingly broad windows enhancing greatly the rich appearance of the whole. They ride upon forty-inch Krupp wheels and are furnished with all the latest improvements as far as ridingis concerned. It would be difficult in a cursory sketch to do justice to the elegance of the interior. At either end of each car is a spacious smoking apartment, capable of accommodating eight people, and very handsomely upholstered in dark-colored leather. The lavatories are conveniently large and well appointed, while the main body of the car is a most luxurious parlor. The windows are very wide, giving a cheerful light to the car and affording the greatest facility for observation. They are also provided with the latest improvements in dust screens. The interior of the car is beautifully finished mahogany, with festoons of flowers in inlaid satin and rosewood. Between the windows and the ends are very handsome plate-glass mirrors with small rosewood borders. The roof is of oak with or-

namentations. The chairs are exceedingly comfortable, upholstered in rich crimson velvet, contrasting well with the dark carpet on the floor. Altogether these cars, the 'Lachine' and 'Carillon,' are certainly among the finest ever brought into Canada."

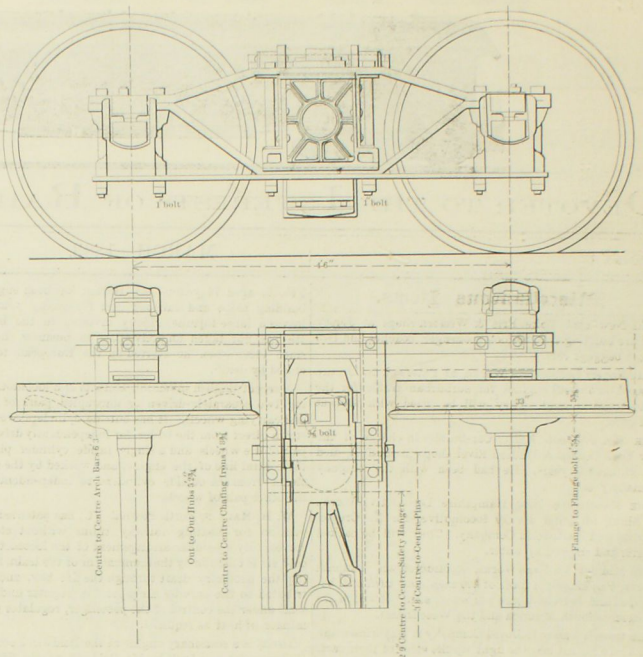
THE shops of the New York, New Haven & Hartford road, at New Haven, are building two 8-wheel engines with 18×24 cylinders, 5 ft. 9 in. drivers and 50 in. boilers. These boilers are in some respects a departure from the ordinary type. They will have a working pressure of 160 lbs. per square inch. The wagon-top or taper sheet connecting the barrel with the fire-box, is strengthened by riveting T iron on the inside. The circular and horizontal seams are all single riveted, the circular seams being strengthened by 2½×10 in. strips spaced about 8 in. apart around each circular seam, and having two rivets in each sheet. Mr. Kittendorf, the Superintendent of Motive Power, has just put in a new Bement driving-wheel lathe, with quartering device of his own designing. It consists of a boring-bar attached to each head, and at right angles to each other. These bars are adjustable to and from the lathe center for any stroke. It is only necessary to have the wheels in the lathe on the centers, as for turning off the tire, clamp them there and throw in the feed for each bar. This is the "setting" required, and the truth of the lathe determines the rest. In the car department, Mr. Denver, the Master Car-Builder, is completing the lot of 75 passenger coaches commenced about a year ago, and will be through with them in a month. He makes use of a surfacing machine in car work, which does away with hand-scraping. It consists of a table fitted with a stationary knife or scraper, against which the stuff to be surfaced is forced by means of rollers. The knives are ground to a chiseling edge by traversing emery wheels, and the edge is turned over by a hardened steel tool in the emery wheel carriage. The shaving taken off is as thin as tissue paper, and the resulting surface is then ready for sandpapering.

THE shops of the Old Colony road, at Boston, are busy repairing four locomotives and building two 8-wheel 18×24 cylinder passenger and two 8-wheel 18×26 cylinder freight engines. The engines of the road have Taylor's water-leg deflector in the fire-boxes. It is simply a water, table slanting upward, starting just below the flues from the side-sheets and six inches back from the flue sheet and extending across the fire-box. Its width is about two feet, and its ends, where they open into the side water-legs, are about three inches higher than the center, so as to prevent the steam in the table from "pocketing." It is very effective in saving the flues, and prevents green, soft coal from gumming them up. The 6-inch space between the front end of the table and the flue-sheet, prevents any coal carried over the table from again reaching the grate. The extended front end, designed by Mr. Taylor, differs from the ordinary construction in having a cone and netting in the stack. The cone throws the cinders into the annular space between the inner and outer stack, from which they are conveyed to the front end, which is simply a receptacle for them, and from which they are blown out once a day through a pipe on one side of the engine. The steam pipe for blowing out takes water and steam from the boiler, and prevents any dirt from arising. Mr. Taylor uses the non-pilot, and on all side-rods fits a bolt between the strap and butt end of rod to take the shearing strain from the ordinary bolts. He also uses a metallic packing on valve stems which lasts about three years. It is made of Babbitt cut rings closed to the stem by a female cone and spring. To relieve the packing from the weight of the valve yoke and stem, a cast iron thimble is fitted over the stem, extending five inches back from the yoke, its diameter being about 2½ inches. Mr. Taylor has adopted the interchangeable system, and finds that it materially cheapens the cost of repairs and of new work.

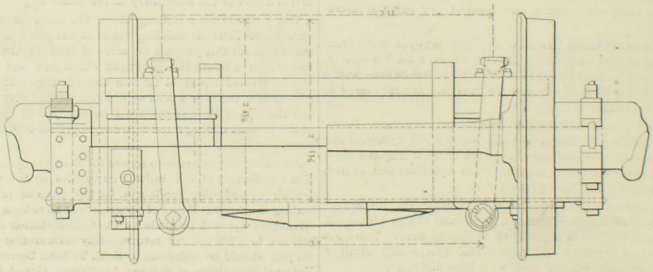
Meeting of Car-Builders at Buffalo.

An adjourned meeting of Master Car-Builders was held at Buffalo, Feb. 14. About thirty car-builders were present from the New York Central; Grand Trunk, New York, Lake Erie and Western; Lake Shore; and other roads in the vicinity. A number of topics were discussed. It was recommended that hereafter no raw-heads be fitted in new cars that will not take the standard link and pin, the link being made of iron of D-shaped section, and measuring 10×1⅛ in. inside, and the pin 10 in. long and 1¼ in. in diameter. It was also agreed that cars for interchange should not be rejected because they have wooden trucks, but only in case where there is some specific defect. There was some discussion in regard to the mileage of steel axles, but nothing definite was elicited. A statement was made as to the weight of 33-inch iron wheels on different roads, which showed an average on 13 roads of 538 lbs. for passenger, and 536 lbs. for freight wheels. A suggestion was made and agreed to, that all broken wheels removed for 30 days should be examined as to the cause of failure, and a report of same be made to the next meeting. It was also agreed that when condition-cards are affixed to cars, the owners may repair such cars at cost and send card with bill, notifying the responsible road in every case as soon as the car is received. The minutes of the meeting are to be printed for distribution. The next meeting will be held at Buffalo on the 11th of April next.

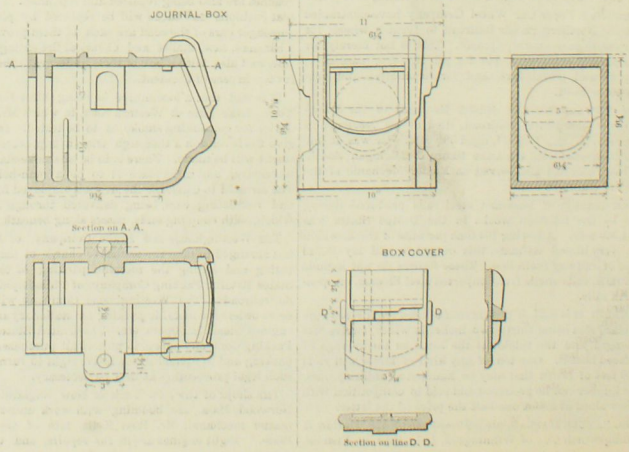
STANDARD FREIGHT CAR TRUCK CHICAGO, BURLINGTON & QUINCY RAILROAD.



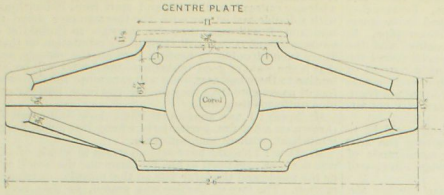
Side Elevation and Half Plan.

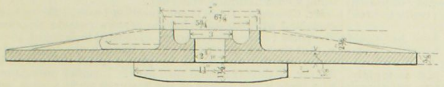


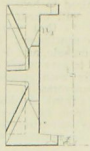
End View and Section.



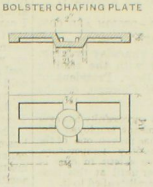
CENTRE PLATE



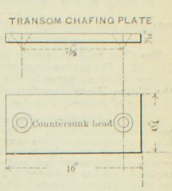




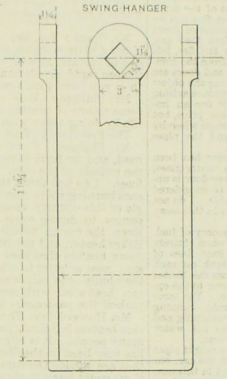
BOLSTER CHAFING PLATE



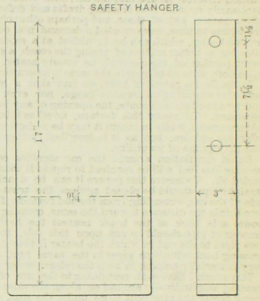
TRANSOM CHAFING PLATE



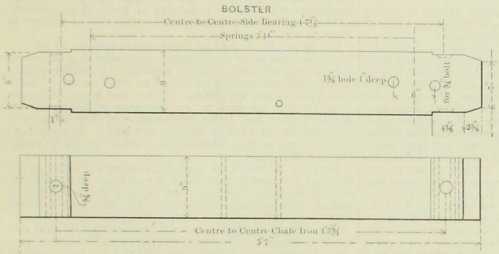
SWING HANGER



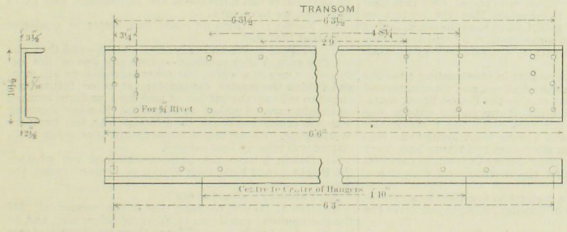
SAFETY HANGER



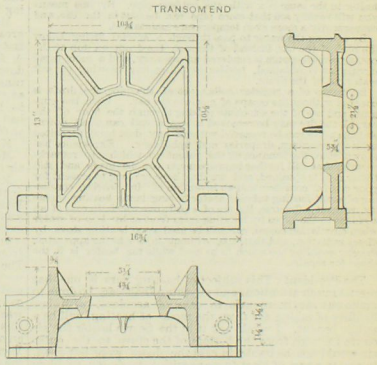
BOLSTER



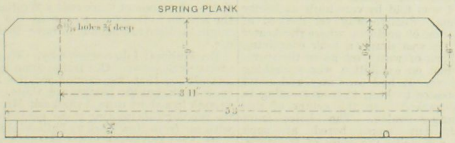
TRANSOM



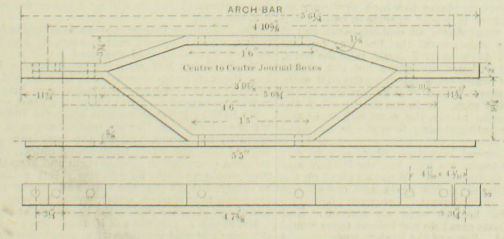
TRANSOM END



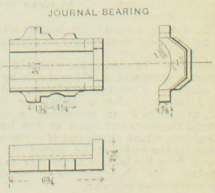
SPRING PLANK



ARCH BAR

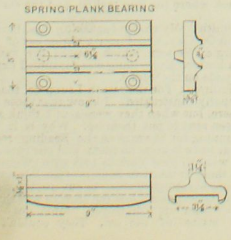


JOURNAL BEARING

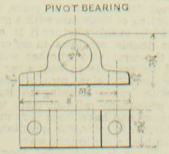


Axles M. C. B. Standard.

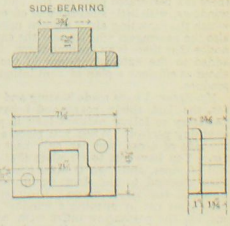
SPRING PLANK BEARING



PIVOT BEARING



SIDE BEARING



Meeting of the Car-Builders' Club for February.

HEATING AND LIGHTING RAILWAY CARS—DESIGN AND CONSTRUCTION OF CAR SEATS.

The Club held its regular meeting on Thursday evening, Feb. 15. The proceedings were opened with the reading of the following paper by Mr. J. Hall Dow, President of the Union Brass Manufacturing Co., of Chicago, on the Heating of Railway Coaches :

Heating and ventilating railway coaches successfully has ever been a difficult problem. Of the various means employed Hot Water, circulating in pipes near the floor, has proven one of the most efficient in maintaining a low, healthy temperature, economy in the use of fuel, and comparative safety in case of accident, and has continued to grow in favor until at this time the public attention seems to be pretty generally called to it.

But the exceedingly high prices charged therefor in the past have been a decided objection, and it may be that other drawbacks exist; as, for instance, when the presence of a pressure-gauge is deemed by the manufacturers to be necessary and essential to the safe operation of the heater, it must be carefully watched to prevent the salt water from blowing out of the drum and pipes, thereby destroying the coil before the fire can be renewed. Again, the presence in or about the heater of doors should as far as possible be avoided, because when they are, through carelessness or with a view of checking the fire, left open, it too often occurs that the poisonous gases from the combustion chamber escape into the car, until windows and doors are necessarily opened, thus creating drafts and defeating the object of the heater. All of these, and perhaps other objections arising from time to time, have created a demand not only for an improved heater, which can be furnished at a moderate price, but also for a better system of piping the coach, a system whereby every portion of the car shall be evenly heated and the pipes upon both sides be of nearly the same temperature.

In the Searle patent of 1881, we find that a heater has been produced requiring no pressure-gauge, nor even a water-glass, and by use of the ash chute, the opening of any lower door is unnecessary. To many this feature, novel as it is, is considered advantageous, while to others it may be objectionable. I do not offer an opinion, but as it is described further on in this essay you may judge of its utility.

Rapid circulation around the car signifies economy of fuel, because less fuel will be required to repeat it than when entirely cooled off. To secure this (where it can be done) four lines of straight pipe should be placed against the sheet-iron plank on each side of the car, extending from the end furthest from the heater two-thirds the distance toward the same, crossing over to the opposite side back of the truck nearest the heater. The same amount of pipe should be put upon this side, thereby running two pipes to the end in which the heater is placed, returning and crossing back with both pipes in the same box, the hot water very materially helping to keep the return water warm.

This much I have said pertaining to the use of straight pipes running longitudinally around or along the sides of the car, but many prefer the pipe bent to go under the seat, and in this case the hot water should be allowed to flow at once through a straight pipe to the furthest end of the car away from the heater and return through the bent pipes and cross over just back of the truck nearest the heater; then up through the floor on the opposite side, run one straight pipe to the end away from the heater, and returning through the bent pipe as before, and return to the heater in the same box with the outflow pipe. By this means you will readily see that more pipe can be put in the car, and consequently a more even temperature maintained.

By causing the water to pass through a special fitting below the roof of the car, instead of through the drum on top of the car, a pressure-guage is rendered unnecessary, and a more rapid circulation is obtained, besides avoiding any blowing of salt water out of the drum.

By means of a register collar out of the pipe, the draft is checked without the escape of gas into the car. With the cup-grate and use of the ash-chute passing through the floor of the car, all the fire may be removed before a coil can melt down, and the ashes can be removed without any dust being deposited upon the hangings, draperies and upholstery. Experience has shown, since the issuance of the patent to which my remarks pertain, that still further improvements can be made and still better results obtained, and we shall hope ere long to present for your careful consideration an invention of Mr. Searles, consisting of a self-feeding tubular heater having large heating capacity, without, of course, the use of a coil; one which, in case of an accident to the pipes by bursting from frost or by loss of water when circulation ceases, can still be used as a heating stove by direct radiation, and that, too, without injury to the apparatus, thereby enabling the coach to be used while the heater is in the shops for repairs.

The President : This subject of heating cars is one that merits much attention, and anything that can be done to make our cars more safe in case of accident, with less liability of taking fire from the mode of heating, will be a public benefit. I would ask if in the Searle heater the air chute through from the bottom of the stove to the outer air would not be liable, in case the doors were left open, to create a sort of blast furnace with a tendency to blow the heater up.

Mr. Dow : Yes, sir ; but we lock that, and the intention is to allow the porter only to clean out his ashes when he gets to a station.

Mr. Spear : I would like to hear something about ventilating cars—by what means he ventilates when he heats with hot water pipes.

Mr. Dow : In connection with this, I firmly believe the Creamer ventilater would probably be the best that could be adopted. There is in the West, and in use, I believe, on the Alton road, what is called the Flagg ventilator. It has, as near as I can remember, a sheet-iron casing set around the stove and open at the bottom. There is also one above, which passes out of the window ; and through these, by the action of the heated air, the impure air is drawn from the bottom of the car and passed out of the window. Mr. Flagg told me he could change the air in a car every three minutes.

Mr. Creamer : I think almost every body in this room knows as much about the Creamer ventilator as I do ; but I might perhaps say something about the new system of end ventilation that is being adopted. In that system there is a perforated plate on the end of the car over the windows, with little shields back of each perforation, by which the incoming air is thrown upward, and by which also the passengers who sit near the end of the car will not notice that there is an opening there. I think that a system added to the exhaust system in the clear-story, makes about as efficient a plan of ventilation as it is possible to produce.

Mr. Spear: I have made heating and ventilating a study for the last thirty years, and I have found that it is necessary to follow nature's laws if you want to make anything perfect. When you place a row of pipes along the side of a car, you can only heat by contact with the air. You have got to circulate that air up against that coil of pipes, and then it must rise to the ceiling and then descend to the floor again, and keep circulating until all the air is warm. I contend that you cannot heat your car by opening a window at the end without making the passengers suffer with cold feet, unless you heat the air before you leave the depot. My theory is to bring the air in, pass it around a heated stove and along the bottom of the car by a tin pipe. I claim that I can heat a car with one-half the fuel and in one-quarter the time required to heat it with a steam pipe. In twenty minutes I will warm a car thoroughly, and the air will be pure. As that warm air rises it forces the foul air out of the ventilators. If you bring a current of cold air from the outside, and do not warm it as it comes in, you are bound to give people colds. You cannot begin to heat as rapidly with steam as you can with hot air. That is admitted universally.

The President : I think the desirable object would be to lessen the danger from fire by either removing the heat generator from the car entirely or having some mode of heating that will insure the safety of passengers in case of accident.

Mr. Spear : The hot water is no safer than the hot air. The proper way to avoid endangering the safety of passengers is to take better precautions in running trains to avoid accidents.

Mr. Dowd : Might I ask the gentleman how he would warm a car standing still for half an hour or so in a station ?

Mr. Spear : Yes, sir. I can warm a car just as rapidly, if not a little more so, with two hot-air heaters, one at each end of the car, as with one steam heater, because we have a more rapid circulation of air from the heater into the car than you have with your hot water.

Mr. Philippi : Was not this meeting called to devise some means of heating cars that would prevent the loss of life by doing away with stoves inside of cars?

The President : That is a great desideratum, certainly.

Mr. Philippi : I am connected with the Reading Railroad, and we have some 500 cars that have the heaters on the outside of the cars. We are not heating with inside flues. I do not think there is any danger of any of our cars burning up in case of accident. I think that the people of this country to-day are looking to the railroad companies to devise some means to prevent the loss of life. Even the car in which Senator Wagner perished had a Baker heater, and the Baker Heating Company to-day condemn heaters that they have built. I have in my possession now a letter in which they condemn the heater that they built—the salt water heater. We all know that you can heat a car with steam, and we all know that you can parboil the passengers if you break the steam pipes.

Mr. Howard Fry: The method of heating cars with outside heaters has doubtless attracted the attention of a great many people. It is of course well known to every one who has ever been on the Reading road that they have stoves that are outside the cars, and it would be very interesting if we could learn if they do heat the cars with the stoves that are placed outside. Those who travel over that road have been accustomed to complain that the heaters on very cold days were not sufficient to heat the cars, and if they have now arrived at some method by which the cars can be warmed in cold weather, it would be very interesting to us to know.

Mr. Philippi: We all know that in constructing a car the greatest cold comes from the windows, and we commenced last fall to double-sash our cars on the Bound Brook route. A few weeks ago, when the thermometer outside was down to zero, we ran our cars with the thermometer ranging from 75° to 80°, and I learn from gentlemen who at the same time was on the return train from New York to Philadelphia, on the New Jersey Central, in cars that had the Baker heaters, that the thermometer was as low as 60°.

Mr. Spear: You do not pretend to ventilate at all?

Mr. Philippi: A car will ventilate itself if you drive the air into it.

Mr. Dow: In regard to preventing fires in case of accident, I would say that last week I made a hurried trip to Pittsburg to see what I was told by very high authority was the most simple and effective way yet devised of extinguishing a fire in case of accident where the heater was set inside the car. It was simply a tank containing from three to eight gallons of water, set above the stove. The stove which they had on exhibition was something very like the Spear stove. It had an inner and outer casing packed with asbestos to keep it from freezing in case the car was side-tracked. In the center of this was a common plunger valve. The holes from this valve radiated, but were bored at such an angle that they did not strike the sides of the stove. There was an attachment made to the bunter, to the side of the car, to the top of the car and very near to the rail. It was perhaps four inches above the rail. These lines being drawn taut to these various places to which they were attached, it was shown how it would operate in case of collision where the car went down an embankment, and it was perfect. By my stop-watch, the fire was put out in 30 seconds, and in 45 seconds I could take the coals, which were red hot, I will not say white hot, out of that stove. This deluge of water came down on the coal without generating any steam. That will be put before the master car-builders very soon. It is the most perfect, the most simple, and it seems to me, the most reliable of any device I have seen for extinguishing fires where the stove is inside of the car.

Mr. Philippi : On several occasions when cars on our road have run off the track, we have lost the heaters and have had to go back to find them. In the accident on the Pickering Valley Railroad a few years ago, one of our trains went over an embankment. Every car had two heaters attached. The heaters were all torn off. Had there been stoves in those cars I do not believe there would have been a life saved. Some of the heaters were brought to Reading, and they were bundled up just like puddle-balls. I am only sorry that in these meetings the general managers and general superintendents of railroads are not present to express their opinions.

Mr. Fry : I have been very much interested in what Mr. Philippi has stated, because I have been situated near the Reading Railroad for a number of years, and have been watching the heating of their cars with a great deal of interest. I would like to ask whether it is now considered necessary to use double windows in order to enable those heaters to heat the cars; also whether with double windows it would be possible to heat a car when the thermometer is 15° or 20° below zero, which is a common temperature with roads running to Buffalo. I have known many prominent railroad men who have seen the Reading heaters and have been very much taken with them, but, on further inquiry, the question came up as to whether you can heat a car in that way.

Mr. Philippi : There is no trouble about heating a car with double sashes, I assure you, and that even at 15° below zero. I will venture to take one of the Philadelphia & Reading cars running now on the Bound Brook route with any railroad gentlemen, and start from Philadelphia with a double-sashed car with the thermometer down to zero, and I will run that car through to Buffalo at a temperature of 71°. I will venture my reputation on that. There is one trouble in heating cars on the outside, and that is the want of good brakemen—men who will be attentive to their business, who will care more for the comfort of passengers than they do for the brass buttons and blue uniforms they wear.

Mr. Spear : I am anxious to know how water can be thrown on a hot fire, particularly where it is a coal fire at white heat, without making steam.

Mr. Dow : I should have said no steam to speak of. It was done, as explained to me, by throwing the small jets on the inside and the large jets on the outside, causing a suction. The face of the fire was grated, so that everything would naturally come out.

Mr. Creamer : There is one question I would like to have explained with regard to having heaters outside the cars. The point I have always heard advocated in favor of them is, that they are absolutely safe. But is it absolutely safe, supposing the heaters to be placed under the bottom of the car, if the car should turn over? I cannot understand why there is not danger of the heater in such a case setting fire to the car. But let it be once settled that a heater outside the car is absolutely safe against the burning of the car, then I think perhaps the ingenuity of American mechanics will contrive some way to make them generate all the heat that is required, even with the thermometer down to zero.

Mr. Spear: In regard to these extinguishers, let me say that whenever a car is telescoped, I consider that the water is knocked right out. These accidents of rolling gently down a hill and cooling off do not so often occur. I have seen a good many accidents. I saw one where 35 people were burned up, and no extinguisher would have been of the smallest use. I contend that none of those things will prevent a fire in a really serious accident If a car goes gently down an embankment, the water would no doubt extinguish the fire.

Mr. Fry: It would be very interesting to know if the Reading Railroad has ever set a car on fire. The neighbors of the Reading Railroad used to envy the reputation it had of never setting a car on fire. But they may have set a few cars on fire without our knowing it.

Mr. Philippi : There was a car burned up that had our heaters attached. We found out that some malicious person, or some careless brakeman, had put his cotton-waste back of the pipes, where it took fire, and the car burned up. Of course we cannot help it when it is owing to the negligence of men who will do anything of that kind. But we have never had a car set on fire in running, and as to collisions, we have none.

Mr. Forney : I think all roads had better be equipped with that heater.

Mr. Philippi : We had only one accident—and that was the Pickering Valley accident—where any loss of life occurred. Once in a while, like other railroads, we kill men; and I think the master car-builders at some future time ought to take up the subject of making a uniform bumper on freight cars. I picked up a man last Monday morning who was crushed to death by a foreign car, the bumpers overlapping. I hope that at some future time your association will take up that subject.

Mr. Dowd: I have not quite ascertained yet whether the Reading road hang their stoves or heaters under the car.

Mr. Philippi: Under the car?

Mr. Dowd: Do you recollect that in the winter of 1863 the thermometer ran down to 25° or 30° below zero, and on the lake front in front of Chicago there was a train of cars stalled on the Michigan Central, or Illinois Central? Was there not on one of those cars a Westlake heater hung on the bottom? It seems to me in the stalling of cars it might be disadvantageous to have that heater below the car.

Mr. Philippi: I do not see why. We pass through some pretty deep snows. Our trains come in sometimes in such a condition that we cannot see the heaters. We see a snow bank, but the heaters are there. If it becomes cold enough in a short time, I shall ask Mr. Gowan to give me the privilege of inviting these gentlemen to take a ride with me from New York to Philadelphia.

Mr. Fry: The heater is not patented, is it?

Mr. Philippi: It was patented, but the patent has run out. We use a great many of Mr. Spear's stoves, and I must say they are as good a car-heater as you can get. I do not think his heater will set a car on fire unless the car is telescoped.

The President: Is there not much difficulty found in local trains, where there are many stops, in keeping the cars warm in extremely cold weather?

Mr. Philippi : Not with the local trains. It is with the long through trains that we have trouble, and the frequent running of newspaper and candy boys into cars, which railroad companies ought to stop, is a great nuisance.

Mr. Sythe : I think we can hope for little from these water extinguishers, for the reason that most of them are operated by valves, and at the very moment they are wanted they are likely to be out of order. If we had a collision every day to operate them and keep them in order, they would no doubt be effective. But collisions happen so rarely, I think that the valves and cocks and those arrangements to turn on water, would be very likely to be found out of order just at the time they are wanted.

Mr. Smith : I would ask if these cars are standing on a side-track in cold weather with a very hot fire in them, is there any danger of the cars taking fire?

Mr. Philippi : No, sir ; we have had cars standing on the track where the iron melted, and the car did not take fire.

Mr. Smith : My reason for asking was, that in January I was in Oil City, and I saw a parlor car of the Buffalo, Pittsburg & Western, which caught fire from the Philadelphia heater. Everything was consumed excepting what was outside on the tracks.

Mr. Philippi : For the reason I suppose, that the car was not properly constructed. I know that those heaters were sent there, but when they were sent I think a man should have been sent to put them up. Why is it that we have been running for 14 years on the Reading road with 500 cars that have heaters on them, and our cars are not burnt up? I went to New York in 1868 with Webster Wagner. I went there to take two heaters of the Reading Railroad to Troy, and we attached them to our parlor car, and after the heaters were attached the trouble was that in putting in the flues it destroyed some of the beauty of the inside of the car. They couldn't put up the

adornments inside, and the consequence was that they took the heaters off the car before they had time to use them. Mr. Wagner told me that he thought it was the best mode of heating he ever saw. They put the Baker heater in, and we know that Mr. Wagner lost his life in a car that had a their heater in it. Some years ago a car was blown to pieces that was heated by the Baker heater. The Pennsylvania Railroad Company have tried steam heating and, I believe, they have abandoned it.

Mr. Fry: I can substantiate what Mr. Philippi says of the danger of putting in a heater of the kind the Reading uses without knowing how to do it. I tried it once myself, and came very near burning a car in consequence. But that did not make us abandon that style of heating, because we knew the Reading had used it for years and had never burned a car. The only reason we did not go further in it was that it did not heat the cars.

The President: Will you please explain how you put your smoke flues in to prevent fires?

Mr. Philippi: We put our flues up through the corner of the car. Some of them we have cased in plaster of Paris, and the ones we are putting in now we are casing with a half-inch thickness of asbestos. We give an air space between the pipe and the outer sheeting. If one of these heaters is put up by anybody who does not understand it, it will burn the car up. I told the master-mechanic of the Buffalo road that when those heaters were sent away. He said, "I understand it perfectly well.", I said, "I suppose you do; perhaps you understand it too well." I am very sorry to hear that his car has burnt up. If any of the gentlemen want to put in one of those heaters I will give them a man, or go myself, to see that it is put in properly.

The President: How many do you use to each car?

Mr. Philippi: Two. The object is not to save fuel. Railroad companies talk about saving fuel, when they ought to try to save life. Don't let it get into the newspapers that we are trying to get up a mode of heating to save fuel. We want to save life, if it takes a ton of coal.

LIGHTING OF CARS.

The President: There is one other subject—the Lighting of Cars, which comes before us. Has any one anything to say on that subject?

Mr. Philippi: I was the first one, I believe, that lighted up the Pennsylvania Railroad in 1860. I had the cars fitted out at Altoona for that company, and an accident occurred there, and some of the cars were burnt up; and they stopped using gas, but they adopted it again. In their first mode of using it they put a cylinder inside the car with 300 pounds pressure to the square inch. Afterward they adopted the mode of the Reading road.

Mr. Hopkins: I represent the Pintsch Lightning Company. I am not prepared to make any formal statement in regard to our system. I do not know how much of it the members of the association are informed about, or where they are looking for information; but I find in talking to railroad men that they seem completely in the dark as to our system, regarding it as a new thing. That, of course, is not so. The inventor introduced this system in Europe in 1870. There are now some 10,800 cars and locomotives lighted with it, without counting what few we have on this side of the water. The system is, in some respects, similar to the system Mr. Philippi speaks of as being used on the Reading road, and in some of its features very different and in some, we think, quite superior. I had the pleasure of showing the system to Mr. Wootten, of his road, some six months ago. I took a car from the Erie road and he had one of his cars there. He said that he was unfortunate in not having a car lighted with his oil gas; but he was consuming thirty feet of gas and I was consuming nine, and he had to acknowledge that our light was about fifty per cent better. In controlling the gas, we think we have something that is a little superior. We have under the car a cylinder, or two cylinders, according to the work that has to be done. If we are going to run from here to Buffalo and back, we put on two cylinders. We compress the gas in the large cylinders at the works, and feed it into those cylinders along the railroad tracks at convenient places, as required, up to ten atmospheres. The gas passes from those cylinders through a regulator, which is strapped under the car. Consequently the high-pressure gas does not have a chance to get into the car at all. The gas passes from that regulator into the saloon and up through the saloon, where it is controlled by a general cock, which regulates the whole system. Immediately above the cock we have an outlet from which is taken the saloon lamp. The pipe then passes up to the roof and along the roof, and outlets are taken out there for the lamps which hang from the roof. We sometimes put in three lamps, sometimes four, but the West Shore Company are going to have five. We expect to dazzle everybody when we light their cars. We have very brilliant cars now on the Erie road, and even in those we do not call brilliant people, can read in any seat in the car with the greatest ease.

Mr. Philippi: Haven't you got 28 burners in your cars running to Philadelphia?

Mr. Hopkins: Yes, sir; but those burners are burning only nine feet. The lamps in which we burn this gas are quite peculiar. The indraught of the air is entirely controlled. We carry it in a certain definite direction all the time, and the same with the products of combustion, two coming in contact, divided, of course, by the necessary diaphragms. In all our recent lamps we get regeneration in that way. Probably if any one at all used to gas should look at one of our flames and I should tell him a foot of gas was burning in our burners, he would probably think I was stating what was an advertising dodge. That gas is costing the Erie Company now about $2 a thousand, compressed. We think it should not cost any such amount, but we have got to be patient in that respect. We have got to educate the men up to the handling of the works; and furthermore, we have been unfortunate enough to have the men taken away from us after we have educated them. We are now training the third set of men. Nevertheless, at $2 a thousand, and burning ten feet an hour, it is a cheap enough light if you want a very brilliant light. As to its safety, we think there we have a very special claim. For safety we put the tanks under the car, and we cut off the high pressure entirely from the inside of the car, and if there is any trouble it can only be a small leakage, such as you have from the low-pressure system. We can do with one foot of gas per hour what the ordinary city gas will do with about five feet.

Mr. Philippi: Do you use oil gas?

Mr. Hopkins: Yes.

Mr. Philippi: Have you in any part of the car a reservoir containing hydro-carbon oil or gasoline?

Mr. Hopkins: No, sir.

Mr. Philippi: You put up to 100 pounds pressure to the square inch?

Mr. Hopkins: Yes, sir.

Mr. Philippi: How do you prevent condensation?

Mr. Hopkins: We do not prevent it. We have certain special ideas about how to do it, and our compressor is designed with that view. We do not claim that we can stop the condensation, but we do claim that making the gas as we do, there is a minimum of condensation, and we further claim that by stopping at from ten to twelve atmospheres we avoid that excessive condensation that you get if you go up to twenty.

Mr. Philippi: I started from Philadelphia with three of the Reading Railroad cars, with four burners in each car, at 280 pounds pressure; went all the way to Toronto, Quebec and Montreal, and back again to Philadelphia, and tried the pressure and had 150 pounds left. That was the oil gas. The gas that is used on the road that is running from Philadelphia to New York is not worth anything at all, because it is compressed coal-gas. And when you get down to 150 pounds, it becomes a blue light. We do not use any air.

Mr. Fry: Does Mr. Philippi have an exposed flame, or is it inclosed in a thin globe that ladies dresses can come in contact with?

Mr. Philippi: There is a large opal globe on our gas. I would assure the gentleman that when a car turns upside down the concussion will put the gas out. But, as I said before, we do not turn cars upside down on our road. You (Mr. Hopkins) allude to mixing air with gas at the gas works.

Mr. Hopkins: Yes.

Mr. Philippi: I thought you meant doing it in the cars. Our gas is so rich that we have to put air in it.

Mr. Hopkins: Any oil gas is so rich that unless you burn the carbon out of it you will have trouble. You can light one of these lamps, and suppose you try to read while it is being lighted; at the end of ten or fifteen minutes you can see a distinct change in the quantity of light by the greater ease with which you can read.

Mr. Philippi: I came down to Philadelphia to-day from Reading. I was in a car that was lighted with two chandeliers, with four lights to each. I was reading a newspaper in broad daylight. As we rushed into the tunnel I continued reading just as all the other passengers did, as easily as if it were in broad daylight. Any light that will do that is pretty good.

CAR SEATS.

The subject of Car Seats was then taken up. Mr. Gardner, of New York, and Mr. C. C. Mason, of Altoona, exhibited specimen seats, and explained their design, construction and advantages.

The President: There is one person present this evening who has found a great deal of fault with car seats, and, indeed, with every thing with which he has had a chance to find fault; and I will ask Mr. Forney to give us his views on car seats.

Mr. Forney: The subjects of car seats is one of considerable importance, and I am very glad to find it is beginning to attract a great deal of attention, especially from railroad managers. The competition for travel is getting greater every year, and the consequence is that managers find the more comfortable they make their cars the more people they attract to them. The result is that they are all inquiring now for the greatest amount of convenience and comfort in the seat. The two seats which are exhibited here this evening, which have an arrangement for inclining the seat, is certainly a move in the right direction. The builders of the old stage coaches gave the seats considerable inclination. The reason for that was that the jolting of the coaches over the old turnpike roads would slide you off the seat; and, of course, where you have a reversible back, you must have it so that the act of reversing will change the inclination. There is another question that has come under my observation. If any of you have traveled on the Sixth Avenue Elevated Railroad, you will find that they have recently been putting in a seat which is made of rattan and very convex. And whenever I sit on those seats I feel as if I was going to slide off. Some time ago I was at the shops of the company and the master-mechanic stated that the seat was extremely comfortable, and that every body was delighted with it. But, when I went into his office, I found that he had an old-fashioned chair, and that the seat was removed, and that it had a beautiful concave surface into which he fitted as an acorn does into its cup. The lesson I want to deduce is this, that the portion of a man's body which comes into contact with a seat does not fit on a convex surface, and, for some reason or other, the delusion has been gaining among upholsterers that in order to make a seat comfortable it is necessary to make it as convex as possible. Now, in that wooden seat (the Gardner seat), you will notice that the makers of it have been shrewd enough to observe that if they made a hard seat convex it would be extremely uncomfortable. The result is, you can ride in a concave seat a long way without suffering in any way. In the first-class carriages in England, you will notice that the back of the seat is upholstered with a projection which takes you in the small of the back and supports you in a most comfortable way. Messrs. Pottier & Stymus, of this city, have placed some chairs on the roads from here to Boston in which they have recognized the necessity of supporting the back, and have carried the back of the seat high enough to give a support to the back of the head. I have aimed myself to produce a reversible seat which in the first place should have the inclination these seats have; in the next place they should have a projection to support the small of the back, and another to support the back of the head, and that in the reversal these means of support should be the same.

Mr. Mason: I believe I have seen almost every car-seat ever made or used in this country, and I know pretty near what the result is from their use. Many chairs of different descriptions have been used by the Pennsylvania road within thirty years, and to my certain knowledge none of them have given satisfaction either to travelers or to managers. I firmly believe now that if some of the first-class car seats of this coach standard here were put into the parlor cars and the parlor chairs were put in the other cars at the same rate, the passengers would take the seats in preference to the chairs. Now, if Mr. Forney will take a seat something like this (Mason's), he will find that the seat conforms to his back very closely. None of the headrests applied to car-seats have given satisfaction. They were expensive. You could not keep one of those high-headed things clean any length of time at all. People complained of their dirtiness. If you use tidies, as they did 25 years ago on the Pennsylvania road, they are a considerable expense.

Mr. Forney: I would like to ask Mr. Mason as to whether the Pennsylvania Railroad do not make the backs of their seats just as high as they can.

Mr. Mason: No sir; they make them 28 inches wide, and they did make them thirty, but cut them down two inches. They cut them down about a year or so. I made the first of these seats that were made in this country, with a separation in the middle, and we cut the seat down two inches. They would revolve by making them 31 or 32 inches wide.

Mr. Forney: I found on the Pennsylvania road that the backs of seats came as low as you can get your feet under them.

Mr. Mason: I agree with you, and I would make the seat, if I had my way, one inch higher. The seats were very much too high. They reduced them two inches some 18 years ago; and then when they came to build the Eastlake cars they brought them down an inch or two more.

Mr. Gardner: All of our seats that we send to Europe are made with convex backs. We are sending thousands to Europe of that shape. That sustains what Mr. Forney states.

Mr. Dow: Very many of the leading trunk lines have learned the lesson of giving ample room between the seats, and they are adopting the reclining chair on their through trains. The Alton road must have as many as twelve or fifteen. When we purchased the right to make the Hartley chair, I thought to make a pretty chair, and I convexed the seat. The manager came to me one day and said, "I wish you would go over the road and try those seats." I went as far as Bloomington; when I came back he asked me how I felt. I told him I felt as though I had been riding on a billiard ball. I changed them at once to concave. The Pottier & Stymus chair is probably the easiest riding chair made. It is well known in the West.

Mr. Forney: So far as the drawing-room cars are concerned which are running in this section of the country, I say unhesitatingly that the chair is a delusion and a snare. If you could substitute for those chairs a really comfortable double seat in the same space and sell it for the same price, it would be infinitely preferable. As to the Pennsylvania backs, they come down so low that there is not room for the feet. I have been at work upon a seat in which the back can be as high as you want it without coming down lower than is desired. I hope to have a seat before long, which has a head-rest, a back-rest, is concave, and is as long as is needed.

Mr. Mason: Nearly all the ladies who ride complain of the high seats.

Mr. Forney: Mr. Mason is right about that. I find ladies do not like a seat more than about 17½ inches high, and ordinarily the seats are made too high for them.

The Heating of Street-Cars.

Mr. C. B. Clegg, of Dayton, Ohio, a gentleman largely interested in the street car service of that city, writes to the *American Railroad Journal*, as follows:—

"I take it for granted that you favor the heating of street-cars. In this I not only think you are wrong, but such favor to emanate from New York, where legislation has been so active to promote the service in a sanitary manner, is somewhat surprising to me. I remember a few years ago, when an attempt was made to introduce stoves into the street-cars of your city, that there was a loud and prolonged outcry against them, some of your best papers making strong protest, supported by the very best arguments why they should not be used. The space at best is limited, and the traffic so precarious and uncertain as to numbers and cleanliness, that, in my judgment, it is impossible to properly heat the car to the comfort of all; and I also believe the time is near at hand when the Boards of Health, in all cities where stoves are used in street cars, will take the matter in hand, and by proper legislation for the best interests of the public, have them excluded.

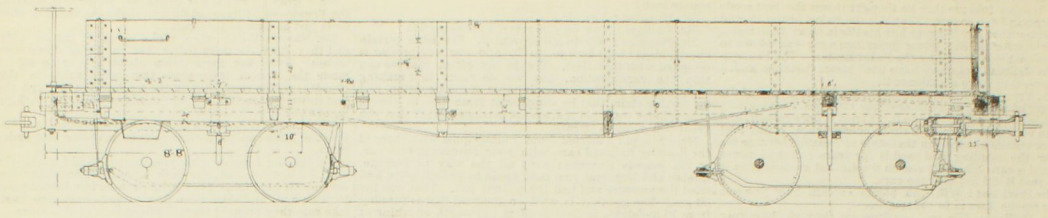
"To look at the matter in as broad a sense as possible, there may be rare cases where stoves are admirable. Where cars run long distances into the suburbs or into the country, or sometimes from one town to another, in short, in all cases when the traffic is not liable, from the nature of the circumstances, to suddenly and unexpectedly increase beyond the provision for it, it is then possible, probably, to so regulate the heat and atmosphere as to produce the least harm.

"I believe, as a rule, street railway companies endeavor to provide ample accommodation for their travel, but in running through the crowded streets of cities there are many circumstances, over which they have no control, which tend to suddenly and indecently crowd the cars. Take, for instance, the Third Avenue line of your city, which upon its rush trips sends out from its stables a car every ten seconds, and yet they will be crowded at times. But whether this is the fault of the company or the people, one cannot but contemplate with a shudder, as he views it, what the probable consequences might be, if in addition to the promiscuous crowd, there was a stove in the car adding fuel to the already dangerous fumes.

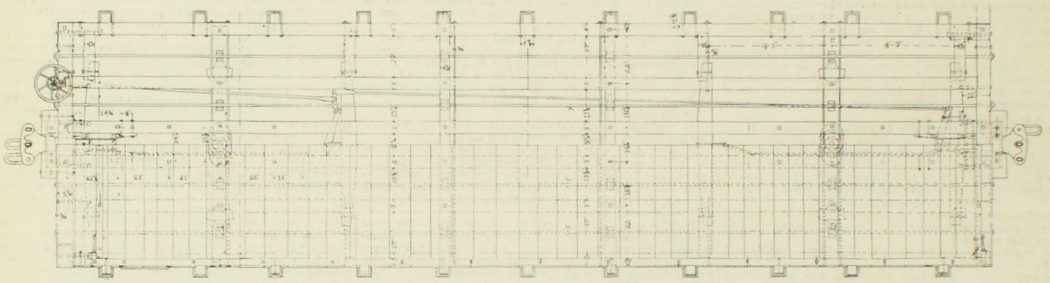
"I give much time and thought to street railroading, and I desire, as far as lies in my power, to give our patrons the very best service possible, but I have yet to be convinced that stoves in the cars will, in any way, help to that end. If I am wrong I cannot know it too soon; neither would I allow, if I am making a mistake, any unnecessary delay in correcting it."

A MEETING was held in Boston, Mass., a few days ago, consisting of 30 representatives of the car departments of roads in that vicinity. The subject of the interchange of cars was discussed, but the ultimate object was to organize a railroad club to hold monthly meetings in that city. The meeting adjourned after appointing F. D. Adams of the Boston & Albany, George Richards of the Boston & Providence, and J. W. Marden of the Fitchburg road, a committee to arrange for future meetings.

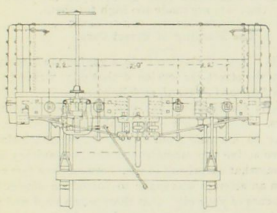
STANDARD GONDOLA CAR—CHICAGO & NORTHWESTERN RAILWAY.



Side Elevation and Longitudinal Section.



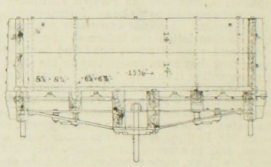
Floor Frame and Floor.



End View.

DIMENSIONS.

Length of sills	32′ 0″
Length of body	31′ 3″
Width over sills	8′ 4″
Outside of end sill to center of truck	5′ 6″
Distance from center to center of stakes	5′ 9″
Height of sides	2′ 8″
Truss-rods, size of	1″
Buffers	2′ 4″
Wheel-base or trucks	4′10½″



Transverse Section.

Mushet Steel.

A correspondent of a contemporary gives an interesting account of a recent visit to the works of a prominent steam-engine manufacturing company, in the course of which some attention is given to the tools used in a combined vertical boring and turning machine, and which were made of the celebrated Mushet steel that is now manufactured in Sheffield, England. The correspondent in question states that one of the tools used in the machine above referred to was employed in turning off a chip on a balance-wheel ¼ inch in depth on a direct radius line. The cut of the tool was on a bevel, carrying a feed of 1-16th inch to each revolution of the balance-wheel pulley. The circumferential velocity of the wheel was 16½ feet per minute, giving one revolution of the wheel in about five minutes, or 12 revolutions per hour. The tool in question, it is stated, turned off the whole face of the balance wheel, 7½ feet, without requiring to be re-sharpened, in about 120 hours of continuous work. On examining the cutting edge of the tool by the aid of a magnifying glass, no perceptible injury from the great amount of work done was said to be detected, in comparison with tools made of tool steel usually employed without being resharpened. The peculiar nature of the Mushet steel is its extreme natural hardness, being sufficient for turning, boring and planing tools without requiring any additional hardening or tempering, as tool steels usually do. In forging the tools, says the correspondent above referred to, the steel requires to be hardened to a very low red heat, to be hammered into the requisite shape and then laid out in the air to cool off. The further finishing of the tools is done on a grindstone or emery-wheel, as no file will make any impression on it in its cold condition. The warming up by continued use is said to have no tendency to soften or draw the temper, as is the case with all other steel, which requires an artificial hardening and tempering to suit it to the service required of it. The United States agents of the manufacturers of the Mushet steel are Messrs. B. M. Jones & Co., of Boston, Mass., who keep it in a variety of sizes and forms.

AT the car shops of the Baltimore & Ohio road, at Mount Clare, six new house cars are turned out per day. Work is also in progress on 200 stock cars, besides keeping up repairs and numbers of freight equipment. The portion of the car shops which was burned in January is soon to be rebuilt. In the meantime the capacity of the shops is much reduced for lack of room. The locomotive department is busy on repairs. There are in the yards three of the original crab upright engines formerly used in passenger service, but now they are used for switching.

IT is rumored in and about Albany that the New York Central people have several fast locomotives under way. Rumor also says that they are intended for hauling fifteen drawing-room cars or sleepers over any part of the road, except, of course, the "hill" between Albany and Schenectady, at sixty miles per hour. There is also a report that considerable latitude has been given to the locomotive shops in the way of design, and that a heavy premium has been offered for the best engine. Fast and heavy trains are to be hauled from Albany to Buffalo and from Albany to New York.—*Railway World.*

THE New York, Lake Erie & Western shops in Jersey City have completed several light cars for use on suburban trains, and are building a number more. These cars are much lighter than the ordinary passenger cars, and are arranged like the cars first built for the Metropolitan Elevated road, having in the middle of the car six ordinary double seats running crosswise of the car in the usual way, but fixed, while from these double seats to the end the seats run along the side of the car. The cars are light and pleasant in appearance, but the arrangement of the seats is not the best that could be devised.—*Railroad Gazette.*

THE Springfield Foundry Company, Springfield, Mass., are turning out some very superior work in locomotive castings, cylinders, driving wheels, saddles, crossheads, guide-bars, etc. They use the best charcoal iron, and produce some of the strongest and best castings in the market, giving particular attention to the strength and soundness of the material. They also make a great many thin casing castings for steam chests, etc., of iron, that were formerly made of brass. The company have won a reputation which commends their products to the attention of master mechanics and others who desire first-class work in the above-named specialties.

THE books of the Westinghouse Air-Brake Co. show that the orders received up to July 20, 1880, amounted to 16,779, of which 3,277 were for engines and 13,502 for carriages. Two years later, or July 31, 1882, this number had been increased to 44,167, 7,949 being for engines and 36,218 for coaches, thus showing a total gain of 27,388 orders for the time. When to this is added the number of orders filled for the Westinghouse Non-Automatic Brake the aggregate is increased to 58,162. If in point of numbers this showing is favorable, the matter of distribution is also equally suggestive. There are now in use on 241 railways in the United States 19,881 of the company's brakes. Next on the list comes England with 10,977 in use, succeeded by France with 9,812. Many railway companies of Germany, Belgium, Austria, Russia, Holland, Italy, Sweden, India, New South Wales and Victoria have also adopted the brake.

THE president of the Nevada & Oregon Railroad, a wild-cat affair, with a nominal capital of $3,000,000, and a paid-up capital of $600,000, has just made his official report for 1882, in which he says: "Of the amount and nature of the indebtedness of the company it is impossible to speak with any accuracy, in consequence of the books, vouchers and accounts being stolen, lost and mislaid by the former officers of the company, beyond the bonded debt of the company. Amount of mortgage, $3,000,000; bonds negotiated, $310,000; bonds in treasury, $290,000; floating debt, including all claims and demands against the company of whatever nature, $250,000. No dividend has ever been declared by this accursed corporation, and it is safe to bet that none ever will be. The company owns no cars nor engines; those on the road are owned by private parties. The net profits of this road have been nothing, as the corporation was conceived in iniquity and born in fraud. Every honest friend of the enterprise has been swindled and robbed, and disaster has overtaken all persons who have been connected with it in any capacity."

THE locomotive shops of the Boston & Albany road, at Boston, have four engines on the stocks for repairs. They will build at once 3 eight-wheel engines and one 4-wheel shifting engine. The standard engines of the road are of the high pressure type, carrying 160 lbs. of steam to the square inch. Any lower figure will not do for its fast trains. Its passenger train record for several months between Boston and New York shows that the trains arrive on time unless detained by accident or other obstruction. The patterns for the compound-tandem locomotives are fast nearing completion. Mr. Geo. H. Colby, the Master Mechanic at these shops, intends to apply the Miller coupling to tenders, and has designed a very clever method of overcoming the difficulties of their application to ordinary tenders, which we hope to be able to illustrate in due time. He also uses a steel brake-beam ¾×4 in. on his tenders, and finds them much superior to the ordinary wood beams. His tender frames are made of channel bar iron of a special English pattern, and iron-bar pilots are used in preference to those with wooden slats.

Communication.

The Joy Valve Gear.

To the Editor of the National Car-Builder:

An editorial article in your January issue, headed "American and English Locomotives," contains a quotation from a statement made by me at the last annual meeting of the Master Mechanics' Association, and also a reference to a comparison made by Mr. Wells, of the Louisville & Nashville road, of results obtained by him from my valve motion and from the link.

Now, I am very willing to abide by all that I said at the meeting referred to, and so long as quotations are made from my language full enough to convey my meaning, I shall be content to remain silent; but as the references are made in a way that is sure to mislead, I desire the privilege of setting the matter in its true light.

At the meeting in question, a valve-path diagram was shown by Mr. Wells, as against a similar diagram from a model of my gear, but which model, though well made, was not of my construction, and consequently did not have the advantage possessed by the link of being made by a person equally well acquainted by practice with its principles and working. I readily admitted that the link diagram shown was one of the most perfect results I had even seen produced from that gear, whereas the diagram of mine, though not a whit inferior to that of the link, was not in fact as exact as I uniformly obtained from the various applications I am making of the gear to all classes of engines in this country, the results of such applications being, both for backward and forward gear, equally good.

In spite, however, of the disadvantage under which my gear inevitably labored, the president of the association, Mr. Lauder, in summing up, admitted that my gear had the advantage over the link in correctness of distribution; and also the two further advantages, that for any given cut-off it had a later release, that is to say, it held the steam longer than the link by fully five per cent., and closed the port for compression later by a still larger percentage. These two advantages, namely, the longer retention of the steam on the piston, and the later point when compression begins, are the very things the writers in your journal are advocating, and which beyond all question I accomplish to an appreciable extent at least by my gear in a direct and simple way, and without any added complication of independent cut-off; and for which latter the writers in your columns are urging the use of an additional expansion or cut-off valve. I do not by any means undervalue independent cut-off valves, especially as they are used in the United States, for I am even now engaged in arranging such valves for special conditions in connection with my valve gear. But my experience certainly is that owners in Europe, even of large ocean steamers, are taking my gear without an independent cut-off, in preference to the link gear with the cut-off valve and its added complication.

DAVID JOY.

[Our information in regard to diagrams exhibited at the Master Mechanics' Convention was obtained directly from Mr. Wells. If the link motion was represented to better advantage than the Joy gear, it was the fault of those interested in the latter device. One of the superior points claimed for the shifting-link is its increase of lead when hooked up, and it is asserted that the Joy gear has a constant lead, a feature of it to which some prominent master mechanics object, although it is not clear that an increase of lead is an advantage. Those who have had any experience with the Cuyahoga riding-valve locomotives built some years ago by Ethan Rogers, at the Cuyahoga Works, at Cleveland, and who have seen those engines running with the best link engines built at eastern contract shops, were surprised at the superiority of the former in quickness of starting and economy of steam. This gear had a constant lead. If the Joy gear, as compared with the link, does less wire-drawing, if it has not the same enforced early exhaust, if the clearances can be reduced and not have the compression line go out of sight over the top of the stack, if less water per horse-power per hour is required, and if a 17-inch cylinder, cutting off at say 8 inches, will give a larger area of indicator diagram than a link motion on the same cylinder and at same point of cut-off, then the superiority of the Joy gear is manifest. But, as we understand Mr. Wells, the motion given by this gear is practically identical with that of the link.

A prominent mechanical engineer recently said to us, pointing to an engraving of the Joy valve gear, to which some indicator diagrams were attached, "If that gear will make such cards as that, with those exceedingly sharp and square corners, by any other means than from a tin templet carried in the engineer's pocket, it is a good thing; but in an experience of twenty years with all kinds of engines and indicators, I never got that kind of card except from a templet expressly got up for the occasion." As regards the extra complication of the riding-valve, it is of no consequence so far as extra repairs are concerned, because any gear with variable travel in locomotive service will require the valve seats to be faced down in from six to twelve months. This valve facing has become, in fact, so chronic a complaint with link motions, that a machine for doing it is indispensable in almost all round-houses. That some riding-valves are better and some worse than the link, proves nothing except that they are variable in quality, like automatic engines or other machines of a specific construction.—ED. CAR-BUILDER.]

Passes and Public Officers.

Some of the Western States are trying to settle the question whether or not public officers should accept free transportation on the railways. There are a good many people who hold that a railway pass given to a public officer is simply a bribe, even though the consideration for which it is given is not referred to on either side; and that the company which gives, and the public officer who accepts such favor, are alike guilty. That there is some ground for this opinion can not well be questioned, although it is hardly fair to insist that in every instance, or even in a majority of cases, the railway company, in giving a pass, hopes to corrupt the officer to whom it is given, or even contemplates such a result. Nor does every man holding office and accepting passes mean to render the railway any questionable service in acknowledgment. If any such conditions were proposed, many would, no doubt, refuse free transportation who now avail themselves of it. Certainly the legislation relating to railroads which during the last three or four years has cumbered the statute book of most of the States does not look as though the companies had bribed the lawmakers, but would rather imply that the legislatures had been unduly influenced to oppose and cripple the railways.

It will be exceedingly difficult to educate men up to the point where a railway pass can be refused, even if the proposed legislation on the subject could be effected. Even the most ultra of our anti-monopolist brethren generally unbend on this question, and if they want to make a journey of a few hundred miles or less, they leave no stone unturned to secure free transportation over the very roads which they so vehemently denounce.

We do not think the railways will use much effort to retard or obstruct legislation of the nature referred to; but if they attempt to live up to the law, should it be passed, they will find their troubles have only begun.—*Elevated Railway Journal.*

Census Railway Statistics.

The following items are taken from the statistics compiled for the United States census of 1880, and which have just been published in the Census Compendium. These statistics have been prepared with great care by competent persons, and although they include only the traffic and operations of the railroads of the country for the fiscal year ending in 1880, they have a special value as being more complete and reliable than any that have hitherto been published. Our space will allow only a summary of some of the principal items, which we put in a form that can be readily understood.

Number of miles of completed road	87,801
Number of miles reported operated	86,731
Average cost of construction per mile	$47,387
Average cost of equipment per mile	$4,818
Total transportation expenses	$352,800,120
Total transportation expenses—per cent. of earnings	60.78
Gross earnings—average per mile	$6,688
Total income from all sources—average per mile	$7,620
Transportation expenses—average per mile	$4,065
Total expenditures—average per mile	$6,245
Net transportation earnings—average per mile	$2,623
Net income or profit—average per mile	$1,375
Freight train net earnings per mile—cents	0.67
Passenger train net earnings per mile—cents	0.43
Freight train mileage	251,022,710
Passenger train mileage	138,225,621
Local freight—tons carried	153,163,276
Through freight—tons carried	137,513,992
Whole number of passengers carried	269,583,340
Average distance, passengers carried—miles	23
Profit per passenger per mile—cents	0.62
Profit per ton of freight per mile—cents	1.53
Average rate local freight per mile—cents	1.64
Average rate through freight per mile—cents	1.01
Average rate local and through per mile—cents	1.29
Total freight earnings	$416,145,758
Total passenger, mail and express earnings	$163,402,781
Earnings not analyzed	$902,055
Per cent. of passenger earnings	28.15
Per cent. of freight earnings	71.85
Whole number of locomotives	17,412
Whole number of passenger cars	12,330
Whole number of mail, express and baggage cars	4,475
Whole number of freight cars	375,312
All other cars	80,138
Cost of locomotive and car equipment	$418,045,459
General officers	3,375
General office clerks	8,655
Stationmen	63,380
Engineers	18,977
Conductors	12,419
All other trainmen	48,254
Shopmen of all classes	89,714
Trackmen	122,489
All other employés	51,694
Total number of officers and all employés	418,957
Amount of pay-rolls for the year (1880)	$195,350,013
Total number of accidents of all kinds	8,215
Number of persons killed	2,541
Number of persons injured	5,674

The train movement during the year, says the *Railroad Gazette*, was equivalent to 2.2 passenger trains and very nearly 4 freight trains each way daily, or one train in each direction every 3½ hours. The traffic was equivalent to 98 passengers and 510 tons of freight each way daily over the entire mileage, and the average train load for the whole United States was 44¼ passengers and 129 tons of freight—equal to a full car of passengers and 11 cars of freight. The average rate per ton per mile, 1.29 cents, is said to be less than any other country. The average passenger rate (2.33 cents per mile) is higher than in the principal countries of Europe, with the possible but not probable exception of England.

THE Providence & Worcester Railroad has been supplying its cars with an apparatus enabling the conductor to signal to the engineer by blowing the whistle from any portion of the train. The appliance is described as being somewhat similar to the automatic air-brake.

Iron in Car Construction.

The Buffalo *Express* describes as follows a car lately run into that city:

The body of the car is largely of iron. The cross-beams of the floor are of rolled iron and the floor is bolted to it. The cross-beams are further connected by two longitudinal stringer plates secured to the under side of the beams by angle-irons running from end to end of the car. The flooring is also laid lengthwise, thereby increasing the resistance to shocks and strains. The sides and ends of the car are composed of an outer sheathing of sheet iron and an inner lining of wood, firmly bolted together. The lower portion of the sheathing covers the ends of the cross-beams, and is secured to the latter by longitudinal angle-irons. The corners of the car body are rounded, whereby a very firm connection of the sides and ends is effected.

It is, however, in the wheel and axle construction that the greatest peculiarities are found. Each wheel is secured to a separate axle, which projects about the same distance on both sides of the wheel. An axle-box is applied to the outer portion of each axle, and upon it rests an elliptic spring. There is also a second journal-bearing resting on the inner portion of the axle. The axles move with the boxes, allowing thereby a travel of ¼ or 2 inches to either side of the center. By this movement the wheels conform to curves with but little more power than is required on straight lines. The inventor claims for this axle construction that, without increasing the present weight of a car, the load can be increased one-half; that the same size of axle will carry double the weight it does now; that doubling the journal capacity of a car gets rid of a serious drawback to heavy loads and the entire end wear of boxes as well; and that by making the axle in two parts, curves will in a measure be made as economical to run upon as straight lines, derailments will be lessened in number, and damages in consequence very much reduced.

In the brake mechanism the usual brake blocks and rods are employed, but a new application of them is made, not easy to describe briefly or without illustrations. The lever by which the brake is actuated is arranged in an upright position on the side of the car body, to which it is pivoted near its lower end. The short arm of this lever is connected with the long arm of the brake lever. The weight is connected with the upper or long arm of the actuating lever by means of a chain. This weight is arranged in an upright box or tube which is secured to the inner side of the side wall of the car body, and which permits sufficient vertical movement of the weight to tighten the brake-blocks against the wheels when the weight is released. The chain runs over a wheel or pulley turning in bearings secured to the roof of the car. The most important feature claimed for this brake system is that it gives the brakeman control of the train, without regard to its length, from the inside of the caboose, and in applying it he brakes the last car of the train first. The same result can be produced by the engineer, if necessary, and, further, it operates automatically. In case of a train separating into two or more parts, each part will be made to stop at once.

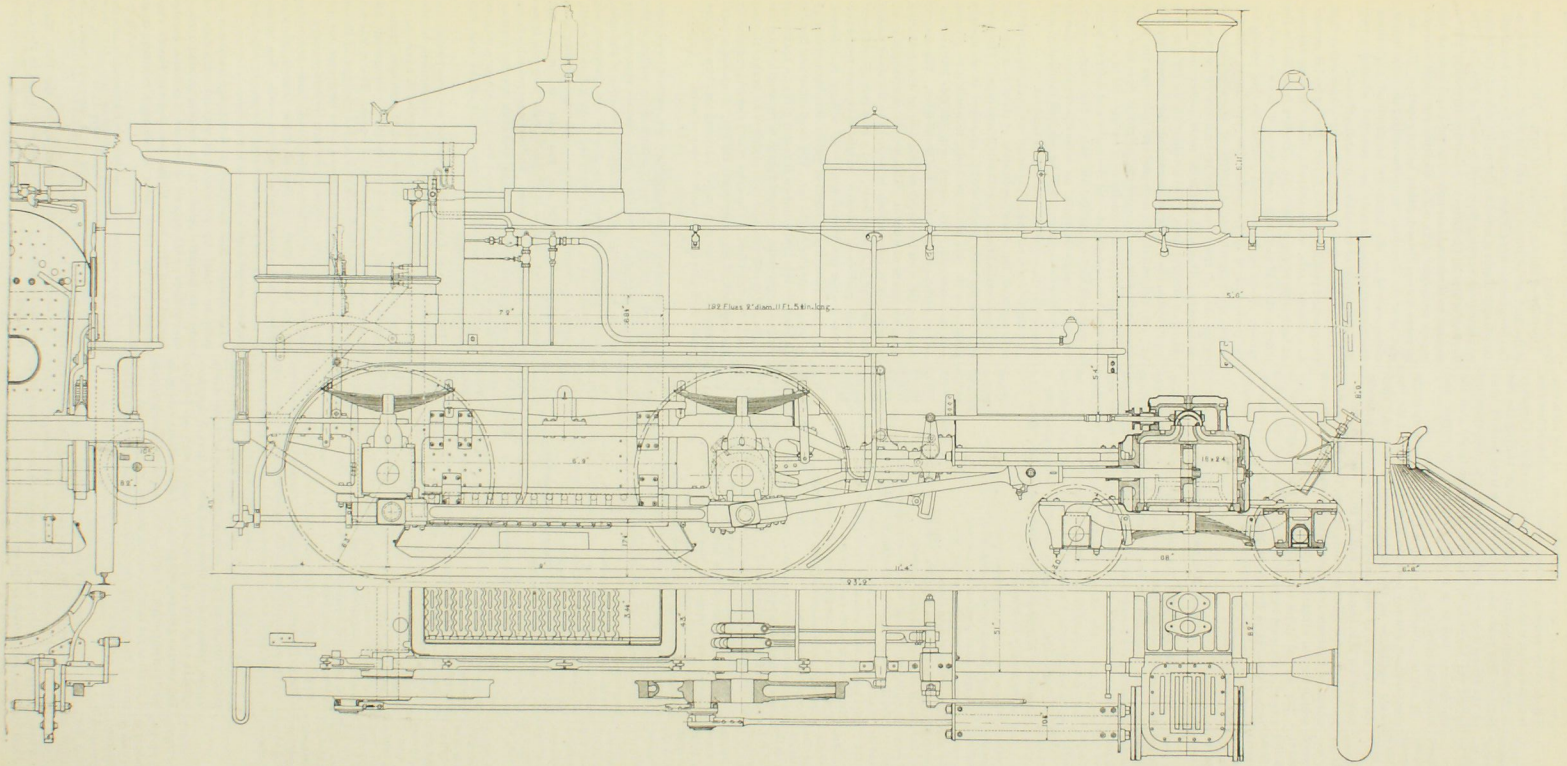
THE Egyptian lines of railway are usually well constructed. Owing to the sandy nature of the surface of the country through which they pass, special arrangements had to be adopted for the greater security of the rails. Timber sleepers, such as are in general use elsewhere, are discarded, and in their place curious-looking discs of metal, somewhat resembling inverted wash hand basins, take their place. Upon these the iron rails are secured, and these are in turn kept in their places with iron rails transversely attached to them. The carriages resemble those on the English roads in external and even internal fittings, so ill-suited to warm climates. But there are open wagons as well, which are only covered with a slight roof, and are therefore cooler.

THE Baldwin Locomotive Works are completing an order for 60 consolidation engines, 20×24 cylinders, for the Pennsylvania Railroad. An order is also in hand for 10 consolidation, 20×24 cylinders, and 15 passenger engines 18½×24 cylinders, for the Philadelphia & Reading road. All of these engines have Wootten fire-boxes. The works are also building for the Northern Pacific a number of 17×24 cylinder passenger engines, also a lot of large ones for the same road. The orders in waiting include engines of various classes for Oregon and California roads, and others are in hand from the Denver & Rio Grande, Mexican National and several South American roads. The output of the works for the present year is likely to reach 600 engines, actual count; last year it was 563.

THE opinion that passenger and baggage cars can be built to stand up equally well without truss-rods, if they are properly sided up, is gaining ground among car-builders. We append a portion of a letter on this subject from Mr. John Kirby, the General Master Car-Builder of the Lake Shore & Michigan Southern road. He says:

"It surprises me to see the old-fashioned truss-rods under the bottom of so many passenger and baggage cars. I can show you 14 passenger coaches, 7 of which were built in 1876, and there is not a truss-rod under them, nor a brace-rod either. In bolting the truss-planks down, if they do not lift the frame from the shores they are not right."

We are promised a drawing of one of the Lake Shore standard passenger coaches for publication in the CAR-BUILDER.



STANDARD EIGHT-WHEEL FREIGHT AND PASSENGER ENGINE—LOUISVILLE & NASHVILLE RAILROAD.

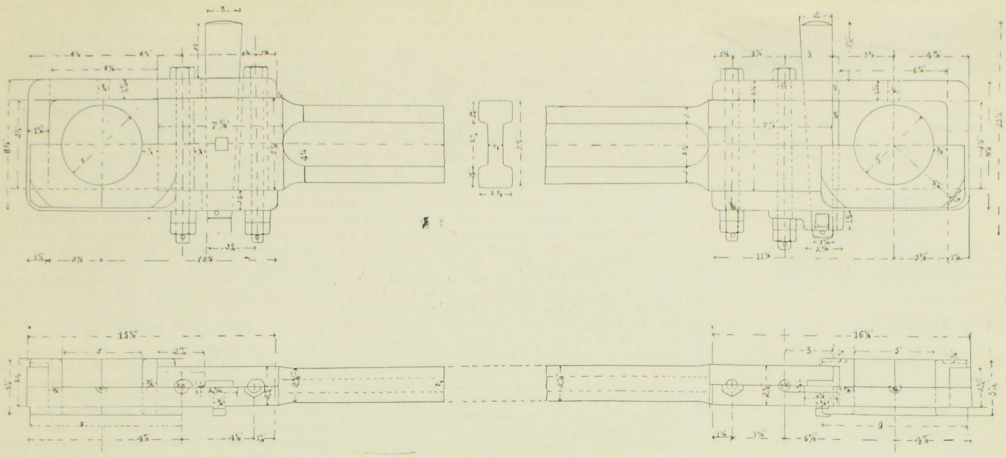
R. Wells, Superintendent of Machinery.

DIMENSIONS, ETC.

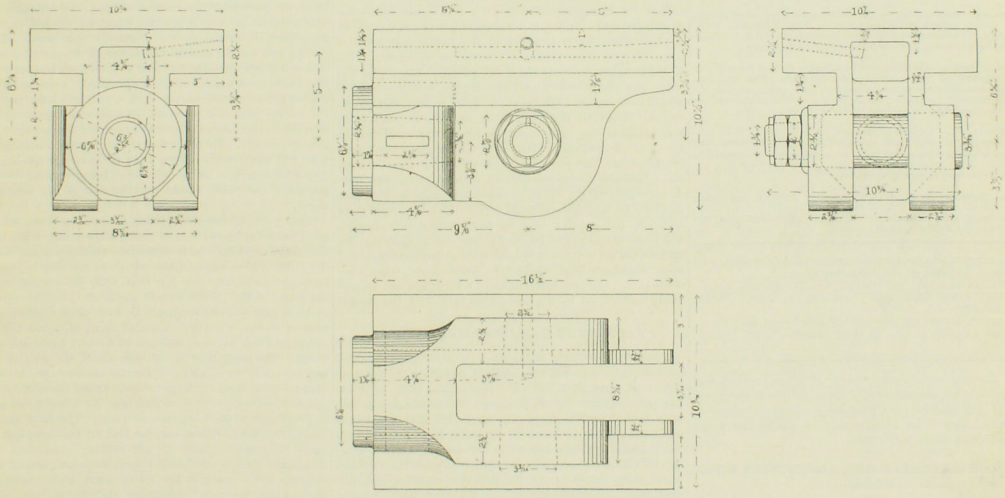
Gauge of track	5′ 0″
Diameter of cylinders	18″
Stroke of cylinders	24″
Distance between centers of cylinders	82″
Diameter of driving wheels	63″
Diameter of truck wheels	30″
Distance between centers of drivers	9′ 0″
Distance between centers of truck wheels	68″
Total wheel base	23′ 2″
Radius of link	54″
Travel of valves	5″
Outside lap of valves	1″
Inside lap of valves	1/8″
Size of steam ports	1¾ × 17″
Size of exhaust ports	2½ × 17″
Diameter of eccentrics	14½″
Width of eccentrics	3½″
Width of link on face	3″
Size of driving wheel journals	7 × 8½″
Size of truck wheel journals	5 × 10″
Length of main rod	87″
Length of crosshead bearings	16½″
Width of top guides	10⅝″
Width of lower guides	3″
Diameter of boiler at smallest ring	54″
Diameter of boiler at back sheet	56″
Inside diameter of dome	28″
Length of fire-box in the clear	72″
Width of grate	34½″
Width of crown-sheet	46″
Width of crown at flue-sheet	51″
Depth of fire-box	68″
Water space, sides and bottom	3½″
Water space	Top, 5″; back, 3½″; front, 4″
Number of flues	192
Diameter of flues	2″
Length of flues	11′ 5⅛″
Thickness of sheets in shell of boiler	7/16″
Thickness of fire-box sides and back	½″
Thickness of fire-box crown	⅜″; flue sheet, 7/16″
Crown bars (in pairs)	5 × ¾″
Diameter of stack	17¾″
Length of smoke-box from flue-sheet	66″
Weight on drivers	59,000 lbs.
Weight on truck	32,000 “
Total weight in working order	91,000 “
Heating surface above grate	117′
Heating surface of flues, inside	1,050′
Total heating surface	1,167′

CONSTRUCTION.

The Boiler is of steel throughout, and all longitudinal seams are strengthened by a welt on the inside. The transverse seams are double riveted. The crown-bars are attached to the shell by heavy braces attached to the wagon-top sheet and to the dome in the usual way, and the connection sheets are braced by



Parallel Rods.



Cross-Head.

four vertical bars on each side riveted to the sheet and connected by two transverse tie-rods 1 inch above the flues. The boiler head is braced by angle bars, and by braces attached to them and to the cylinder port of the boiler.

The Fire-Box is fitted with the brick arch supported by four pipes attached to the flue sheet below the flues, and to the crown-sheet about 18 inches from the back sheet. The grates are of the rocking pattern.

The Cylinders are the half-saddle pattern, and have Allen valves.

The Smoke-Box is extended 29 inches, and to its lower side is riveted a cast-iron spark-box, 18×24 inches, with curved sides and fitted with an air-tight sliding-valve working in guides on the sloping front at the bottom, moved by a screw. The valve covers an opening 6×6 inches, wedging itself tightly to its seat when closed. The fittings of the smoke-box are all air-tight. The diaphragm and netting in the box are arranged in the usual way. This plan of smoke-box has given good satisfaction on the road.

The Driving Wheels are the hollow spoke pattern.

The Truck is the kind known as the Mason pattern, having the two frame-bars bolted to the cast-iron center.

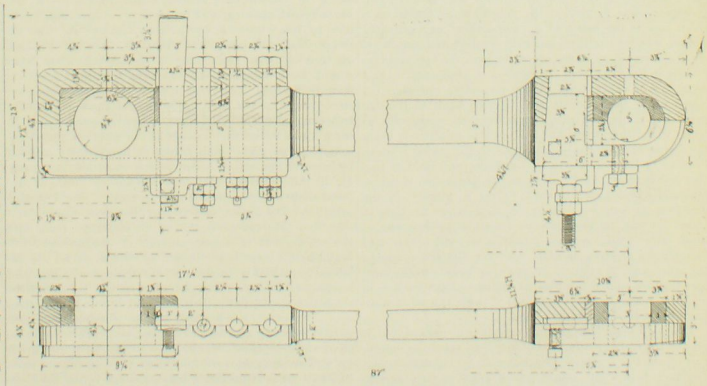
The Guides are of wrought iron, case-hardened, the top piece 10¾ inches wide, covering the entire crosshead, and giving a bearing of 10¾×16½ inches. The lower guides are double, each 3 inches wide. Crossheads are of the best cast iron with steel pin for main rod.

The Links are wrought iron case-hardened, 3 inches wide on the face, suspended ⅝ inch back of center. Radius of link 54 inches, and the greatest variation of the point of cut-off measured on the guides is ⅝ inch.

The Springs are 38 inches between centers of hangers.

The Parallel Rods are iron, made in the shape of an I-beam, 5½ inches deep at center, 4¾ inches at ends, 2½ inches wide at top and bottom edge, and ⅞ inch thick in the center.

The foot-plate is cast iron. The boiler is supplied by 2 No. 7 lifting injectors. All parts of the engine are made to templet and are interchangeable. The frame bars are 3½ inches wide,



Main Rod.

and main bar 4 inches deep. Width across the frame, out to out, 51 inches. The driving wheel centers project 1 inch inside of the tire, so as to permit a change of gauge from 5 ft. to 4 ft. 9 in., by moving the tire inward on the centers if desired. The cylinders and steam chests are covered by cast iron casings in the usual way. The steam chests and their covers are one piece, and the joint at bottom is made of ¼ inch copper wire. The rods are planed and painted, and all the parts of the engine are free from superfluous embellishment. The boiler is tested by a steam pressure of 185 pounds.

Illustrations of further details of this engine will be given in our next issue.

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EDITORIAL ANNOUNCEMENTS.

Addresses.—*Business letters should be addressed, and drafts and money orders made payable, to* THE NATIONAL CAR-BUILDER. *Communications for the attention of the Editor should be addressed* EDITOR NATIONAL CAR-BUILDER.

Advertisements.—*Nothing will be inserted in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *The editorial department will contain our own views and opinions; and the rest of the reading matter, aside from advertisements, will be such as we consider of interest to our readers.*

Contributions.—*Articles relating to railway rolling stock construction and management, and kindred topics, by those who are practically acquainted with these subjects, are especially desired. Also early notice of changes in railroad officers, organizations and names of companies.*

Special Notice.—*As the* CAR-BUILDER *is printed and ready for mailing on the last day of the month, advertisements, correspondence, etc., intended for insertion, must be received not later than the 25th day of the month.*

SUBSCRIPTIONS *to the* CAR-BUILDER *will be received, and copies kept for sale, at the following places:*
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OUR January and February numbers are exhausted, and consequently we can not supply them to new subscribers. Those of our readers who may have any spare copies of these numbers will be remunerated by sending the same to the office of the CAR-BUILDER.

TRAIN DISPATCHING AND LOCOMOTIVE ENGINEERS.

The system of train dispatching now in vogue seems so simple and effective, in theory at least, that errors and mistakes can only occur from downright negligence. The system consists in placing the control of all trains on a given line in the hands of a "dispatcher" at a principal station, who transmits his orders to conductors through the telegraph operators at the other stations, the operators reporting to the dispatcher the exact time of the arrival and departure of every train at the respective stations. On many roads, these orders are repeated back to the dispatcher to make sure that conductors and engineers correctly understand them, and if there is no misapprehension the dispatcher telegraphs that it is "O. K." When a train, running under orders, arrives at a station and finds no further orders there, it falls back on the time-table, which is practically giving such trains the right to proceed in one direction as long as they are on time, or on the time of trains moving in the opposite direction. When one of these latter trains reaches a station at which the card designates a meeting, it must wait for the train coming the other way, 30 minutes or more, according to the card specification, and 5 minutes in addition for variation in watches, when it has the right of way, the other train having lost it by dropping behind.

This is all plain enough, and easy to understand, but is prolific in errors growing out of the risks taken by engineers on the five minutes variation, and by conductors and engineers both when changing from running on orders to running by card, or, in other words, when running on orders the dispatcher must keep other trains out of the the way of individual trains, and when running by card they must look out for themselves by knowing the meeting points and the number of extras that are to be passed at each. The time-card rules are supposed to provide for all possible contingencies. One of these is that a train running to meet another train shall not leave a preceding station unless there is time for it to reach the meeting point and side-track at least five minutes before the other train is due, while the opposing train may leave on its card time, to cover any error in watches. Suppose train *A* is ordered to run to *X* within a given time. The engineer must at once decide whether the time is sufficient, although his engine may steam badly, and he may have taken on some additional cars that pull harder than usual. By the time the order is returned with the "O. K." indorsement he has only two minutes left, and can only eke out the five minutes by counting on the variation of watches to make good the difference. He decides, nevertheless, to proceed. The opposing train *B*, having orders to leave at such a time unless *A* has arrived, pulls out and proceeds also, although the wind is dead ahead and the engine steams badly, the engineer concluding that it is safe to use three minutes of the five, on the score of watch variation, inasmuch as *A* has no right to the five minutes and may not take them into account. In the meantime *A* makes the best progress, and getting near to *X*, reaches the whistling point, hoping that if *B* has pulled out he will hear *A's* whistle and stop; *B* hears it and tries to stop, while *A*, in his eagerness to get within whistling distance before *A* starts, is under full headway, is all at once as eager *not* to reach *X* as he was a minute or two before to reach it. If the brakes hold, a collision may be averted, but the uninitiated reader will ask why either train should leave on such a small margin of time when the risks incurred in doing so are perfectly well understood.

The locomotive engineer is compelled from the very nature of his duties and responsibilities to take risks. He is placed, as it were, between two fires in dealing with emergencies that are liable to arise at any moment. If he is over cautious and takes a large margin of safety, he gets a repute for being behind time, which does not please the superintendent. If he is reckless and takes chances that are hazardous, he is exposed to the tender mercies of a coroner's jury and a verdict of "criminal negligence." He is liable to get into trouble if he adheres strictly to the rules and obeys orders, and trouble frequently overtakes him if he does not. His faculties, both mental and physical, are taxed to the utmost by continuous strain from watchfulness day and night on long trips, retaining in his mind a knowledge of the track, his rights by card, telegraph orders, the movements of wild trains and extras, and a host of other contingencies incident to a line burdened with traffic. What we have said applies more particularly to single track roads, upon which the chances of collisions are greater than on roads with double tracks, and illustrations might be cited to any extent showing the undeserved blame that is heaped upon railroad officers, and upon engineers and conductors particularly, when accidents occur, the true inwardness of which are but imperfectly understood by the newspaper press and the public.

PASSENGER CAR ORNAMENTATION.

A great many costly and luxurious passenger cars were built during the period immediately preceding the years of industrial stagnation which followed the panic of 1873. The expenditure for fine cabinet work, trimmings and other ornamental features was so lavish that a reaction was looked for in this style of car work, from the fact that one extreme is pretty sure to be followed by another of an opposite kind. It was also thought that such an extensive use of rare woods in car construction would so increase the price by diminishing the supply that less expensive styles of interior finish would have to be resorted to. And this was really so. For a time there was an effort to economize in consequence of the cloud which for a few years rested upon railway prosperity. Veneering, which had so long been a conspicuous feaure in the interior finish of cars, had become tiresome to look at, and it was felt that a change of some kind would be a relief. Many old cars that had been originally finished with veneer were revarnished and restored as far as possible; but in spite of the most skillful treatment they had a furbished-up, second-hand look. In cases where restoration was out of the question, they were sometimes painted in plain colors or handsomely grained by improved processes, one of which consisted in a transfer to the receiving surface of the natural grain of any piece of wood by a mechanical operation like ordinary printing. The spasm of economy, however, was of brief duration. The reorganization of the bankrupt roads and the wiping out of a vast amount of indebtedness, followed by the great iron "boom" of 1878-9, set all the collateral industries of the country on their feet again, and not only revived the demand for fine cars, but enabled the roads to respond to the demand with more alacrity than ever. Veneering has not only become obsolete, but is regarded by many as a cheap device, very nearly akin to sham and deception. Many cars with the old veneer finish are still running, however, but they have an ancient look, like well-preserved relics of a by-gone age before the Eastlake eruption had broken out. Black walnut has disappeared, and the same may be said of gilt moldings and many things of the doll-baby style of decoration.

Mahogany is the rage now. It must be plain and solid, and polished like a mirror. Next to mahogany comes the native hard woods, of which ash is a favorite just now. Where this wood is used exclusively for inside finish, as in the passenger coaches of the Pennsylvania Railroad, it gives to the interior a light and cheerful appearance, and when relieved with a few unique Eastlake designs and carvings, produces a pleasing effect, mainly because the principle is adhered to in these cars of ornamenting construction instead of constructing ornament. We have not yet seen any cars with mahogany outside paneling, but we have read of them. It may have been a slip of the pen by some excited local reporter. One thing is quite evident, at all events, and that is that fine cars have become as much of a necessity to the great majority of people as first-class hotels or steamers. The term "palace" as applied to cars is fast losing its distinctive meaning. All the so-called coaches or day-cars of recent construction are palaces, so far as material and ornamental finish are concerned, and there is small prospect of any reaction toward a cheaper or more economical style. The natural rivalry between the great competing passenger lines will always tend to keep their own as well as the cars of connecting lines up to a high standard, and the standard will always be determined by the best available material and skill.

CAST IRON CAR WHEELS.

The amount of service to be got out of iron car wheels depends, of course, upon the material that goes into them, the design of the patterns and the process of manufacture. Like all other manufactured products for which there is a large and constantly increasing demand, the integrity of the article is dependent to a certain extent upon competition and the clashing interests of makers and consumers. The price determines the quality, and as no wheel-maker can afford to make better wheels than he is paid for making, it follows that his customers in the long run get no more than their money's worth, whatever the price may be or the amount of guaranteed service. Considering the vast quantity of wheels that are worn out in running, the proportion of broken ones is certainly very small. This speaks well for the general excellence of the manufacture. But still it is a question whether it would not be better for the roads as a matter of economy if they were to pay a higher price for iron wheels than they have been paying for several years past, provided the additional cost could go into the wheels instead of merely increasing the profits of the manufacturers. There are few wheel-makers, we imagine, who will not readily admit that the average quality of iron wheels now in use is capable of being very much improved if the roads would pay the cost of the improvement.

Some years ago an enterprising firm at the West, with a good practical knowledge of the business, but with limited means and little or no influence, started a wheel foundry. Their idea was to make wheels of nothing but Salisbury and Lake Superior pig iron, with no admixture of old wheel scrap. Their wheels made an excellent record, and one that was not surpassed by that of any other iron wheels in the country. Some of them ran over 100,000 miles, and the average mileage of several thousand was 60,000. The margin of profit was small, the aim of the parties being to establish a reputation that would ultimately give them a large trade. Other concerns competed, however, prices were cut, and old wheel scrap used in proportion to the reduction in price. The firm had no alternative but to follow suit or lose its business, and so made "shoddy" wheels in self defence. At first the treads and flanges of the old wheels were knocked off and only the softer metal in the centre used, until finally, as competition increased, the treads and flanges also went into the mixture with the new pig. This concern will now, it is said, if hard pressed, make wheels for $10 that will probably make an average mileage of 21,000 miles. The guaranteed mileage, if there is any guarantee, must be moderate, or else the service performed is so much clear gain to the roads and correspondingly disastrous to the business of the makers. The mileage of freight car wheels, however, is to a great extent an unknown quantity which can only be approximated. As an evidence of the quality of the wheels formerly made by these parties, we have seen them stand from six to eight blows of a 900-pound drop, falling thirty feet, before they broke. But now a single blow of the same drop from the same height will break a wheel of their present making into pieces small enough for the cupola. This may perhaps be an extreme case, but it is none the less useful as an illustration. It is needless to ask where the blame lies for the production of inferior and short-lived wheels. In this matter it is obvious that the wheel-makers do not "waggle" the roads, but, on the contrary, quite otherwise.

The exclusive use of pig iron, however, does not always result in producing the best wheels. The form of the wheels has much to do with it; that is, a wheel must be so designed with respect to thickness that the cooling will be uniform, or as nearly so as possible. The strain induced by rapid cooling is equalized very much by taking the wheels red hot from the moulds and placing them in annealing pits, where the temperature will be reduced gradually. Some wheels are so badly designed in this respect that the annealing process will not save them, although cast from good grades of iron of the kinds above named. A few blows with a sledge on their centers will cause a rupture on one side with a sharp report, in consequence of the strain in cooling, while the rim remains intact. Good wheels can only be made by having a good pattern to start with that will allow of the least possible

strain in cooling; they should also have ample time in the pits and be made of selected Lake Superior and Salisbury iron. We do not undertake to say that very good and serviceable wheels can not be made with a mixture containing a certain proportion of carefully selected scrap. Old, worn-out wheels, however, are hard, and get harder when they are remelted, and we have heard experienced wheel-makers say that not more than one-quarter of any average lot of them is fit to go into new wheels. A prominent wheel-maker said at a recent meeting of the Car-Builders' Club, that an iron wheel, properly made, would run more miles without grinding than with, but that no foundry could make them that way at the present ruling prices.

STEAM ENGINE INDICATORS.

The value of the steam engine indicator to railroads is much more than it is usually credited with—assuming, of course, that it is in proper hands and intelligently used. It is claimed by some that a practical man can tell what is wrong with an engine without the aid of an indicator. As well might it be claimed that a country doctor, with no more knowledge of medical science than existed a hundred years ago, can determine the nature of diseases as correctly as the best practitioners of the present time. A practical man, by laying off the points of admission, exhaustion and compression, may form a valve-path diagram, which, with plenty of assumption, may be accepted as an indication of the action of the steam in the cylinder, just as a physician may form a diagnosis of his patient from symptoms very different from what is revealed by a *post mortem*. Not long ago a trial was made of two new locomotive engines with the same cylinder, wheel and boiler dimensions, but with differently designed link valve motions. The trial consisted in attaching to one of the engines a certain number of cars, weighing the coal and running a certain distance. The same train was then attached to the other engine, the same distance was run, with the same engineer, and on the same day, making the trip in the same time as nearly as possible, and running the engine in the same notch and with the same throttle. The result was that one of the engines burned 8 tons more coal than the other, the coal for both being taken from the same pile. All sorts of "practical" reasons were presented to account for the phenomenon, and all sorts of suggestions made in the way of remedies. The indicator, however, showed that one engine had 12 pounds more back pressure than the other, a fact that nobody suspected until it was made known by the instrument. When the trouble was made manifest, it was easy to select and apply the remedy. In order to secure the most economical results, steam must act in accordance with well-known laws, and the indicator furnishes a record of this action.

This point, we are aware, is questioned by some. But in both stationary and locomotive practice, when an expert engineer is called upon to determine why an engine misbehaves, or has too strong an affinity with the coal pile, he first of all seeks for the information afforded by the indicator, which is the corner-stone, so to speak, of all improvements in the economy of steam engineering. The trouble may be in the engine or boiler; the indicator at once determines whether it is in the engine, and saves a great deal of tinkering with the valve motion and petticoat pipe, instead of pulling out the flue sheets of the boiler and inserting new ones with a less number of flues. Working without the indicator necessitates a blind groping for facts, which may be aptly illustrated in the case of a detective in search of a rogue, but who can not determine whether he is in New York or Chicago.

THE HIGHER MATHEMATICS.

The question is often raised as to the practical value of a knowledge of the higher mathematics to persons who superintend the operations of car and locomotive shops. In casual discussions of the subject, there is usually a division of opinion according to individual tastes and attainments. By higher mathematics are meant those branches of the science outside of arithmetic, a knowledge of which is considered indispensable for the correct solution of all intricate problems in mechanics and engineering. That the mere acquisition of such knowledge develops and strengthens the reasoning faculties can not be denied, and to this extent it is undoubtedly a decided advantage to any one who labors to acquire it. Its utility, however, in the conduct of the mechanical departments referred to, depends very much upon the extent to which it is practically applied, and is best determined by experience. It is the popular impression that a skilled mathematician must necessarily be qualified to deal with all problems in mechanical construction in which abstract relations and unknown quantities are involved, and to do so with a certainty that precludes any possibility of error. If a person who is acquainted only with the processes of arithmetic should desire to know the principles which underlie a complicated piece of mechanism, the so-called link motion, for example, he would doubtless be so impressed with the idea that the fundamental truths are so hopelessly hidden in mathematical obscurity that he would despair of his ability to ascertain what they are by any process of demonstration. But should this same person become an adept in the higher branches of mathematics, he would probably swing like the pendulum to the opposite extreme, and bring his knowledge of those branches to bear, not only on the link motion, but upon all the simple problems that he had previously solved by the elements of arithmetic.

So far as our own experience goes, we have never encountered a problem in locomotive or stationary engine work, and still less in car work, in which any mathematical knowledge was necessary that can not be obtained outside of a regular collegiate course of technical instruction. We would by no means belittle the advantages of algebra and geometry. A mere book knowledge of these sciences is of limited value unless the mental sinew so acquired is employed in the doing of useful and practical work. We once knew a person who was so saturated with the higher mathematics that he could not determine the value of four apples at two cents apiece without half a page of figuring. His mathematical tendencies had developed a characteristic of which he could not rid himself, and that was how *not* to arrive at a result in the most obvious and simple way.

Mathematics is a branch of study for which the student must have a special aptitude in order to qualify himself for any one of the engineering specialties. The study of it must begin early in life, and unless much time and attention are given to it in after years the proficiency attained will to a great extent be lost. Inasmuch as all clear-headed, sensible and practical men are not mathematicians in the ordinary meaning of the term, and as the men in charge of car and locomotive shops are almost exclusively of this class, it would probably be a good plan for them to refer knotty and difficult questions that may arise in the routine of construction, to a mathematical professor or expert, the same as physicians in general practice refer particular cases to specialists. These men, as a rule, have acquired their education as mechanics in the shops, and have advanced from the grade of apprentices to high and responsible positions. So far as they are concerned, it is more of an abstract than a practical question whether a knowledge of the higher mathematics would be a help to them, for the reason that they can not now acquire that knowledge, except so far as to be able to interpret formula which is indispensable to success in their vocations.

CAR SEATS.

That the present styles of car seats differ considerably in their design and construction is an evidence that some of them, at least, are not as perfect as they might be. The point is to ascertain in what respect the best of them are defective, without being too hypercritical and exacting. It must be admitted that as a general thing the seats in our passenger coaches are very comfortable for the sitter, and can be occupied for an hour or two, or for several hours, without positive torment or any very great amount of discomfort. At the present rates of fare, a car of a given length must have a capacity for seating a certain number of persons, or else the traffic will not be remunerative. Any change, therefore, in the style of seats as they are now made, in order to render them more luxurious and pleasing to the sitter, must not be such as to occupy a larger space on the car floor. The limitation as to space must not be exceeded. Whatever is done must be mainly in the shaping of the seat and seat-back. It is alleged by those who are dissatisfied with the present general run of car seats, that their forms do not fit the average human anatomy, and that the said anatomy, in trying to fit itself to the seats, is rendered uncomfortable. The thing to be done, then, is to make the seat fit the anatomy when it is in a sitting posture. The only infallible way of doing this would seem to be by the arrangement of a quantity of moistened plaster of Paris or other plastic material, in the general form of a car seat and seat back, the back extending up pretty high, and then let some person of average physical development and medium stature, clothed in well-fitting tights, seat himself in the wet plaster at such an inclination of the body and pose of the head as may be most desirable to a railway traveler, and in this way produce a mould corresponding inversely to the anatomy. This mould would determine not only what the width of the seat and height of the back should be, but also the exact form of each in order to comfortably support every part of the rear outline of the average person aforesaid, from his knee-joints to occiput, and be at the same time an immense help, if not a sure guide, to car-builders in their efforts to make good seats. The only trouble would be that seats so constructed would not suit all sorts of people, but only the average sort. Giants, dwarfs and children, would have to adapt themselves to circumstances as best they could, blaming their own infirmities of condition and not the seats.

Having suggested a plan for making the seats fit the average sitter from the top of his head all the way to his knees, we are a little perplexed how to provide for the anatomy below the knees. As the distance from the knee to the heel-sole varies very much in different persons, and as the height of a car seat above the floor can not well be made adjustable to every person who occupies it, any discomfort experienced on this account can not justly be charged to the seats or to the seat-makers. Women, as a rule, would be better suited if the top of all car seats were not more than 16 inches above the floor, while men would like it better if the height were 19 inches. In either case, somebody is sure to be incommoded, and if the happy medium of 17½ inches is made the rule, both sexes are placed more nearly on a par, although still subjected to some slight discomfort, a thing which is not to be put up with in a railway car without vigorous protest. We would suggest in conclusion that if car-builders can not contrive a style of seat free from defects, within the limitations to which we have referred, then it is obviously the duty of those who complain the loudest about existing defects, to contrive one for them, or else cease complaining. There was a brief discussion on this subject at the last monthly meeting of the car-builders, a report of which will be found on another page.

IN the management of railway machine and car shops there is a growing tendency to dispense with the services of employés who have reached the age of sixty or thereabouts. It is assumed that at this age the physical and mental energies begin to flag to such an extent as to lessen the amount and value of the service rendered, and that the retention of such men at the regular scale of wages is a tax on the earning capacity of the roads. This assumption may be correct enough in many individual cases, but to establish a rigid rule of practice that superannuates a man at three score, would be unjust if not oppressive. There are many men at the age of sixty whose capacity for laborious application of mind and muscle is as good as ever, while their experience and judgment have constantly ripened as they grew older. In railway administration, it seems ungracious to accept the services of a man from the time he enters the shop as an apprentice until his hair changes color, and then send him adrift to seek employment under a disadvantage which it is not in his power to remedy. A machinist who has worked thirty or forty years in the shops of one road, is too much a part of those shops to succeed well in other shops or in any new line of business. An old journal-bearing that has become grooved and furrowed, will run tolerably well in its own box, but must be refitted in order to run well in a new box. A machinist at the age of sixty can not be refitted and adapted to new conditions, and therefore it would seem that he should be dealt with considerately, and especially so upon roads whose prosperity he has helped to promote by long and faithful service in the sphere of his allotted duties. All corporations are not soulless, but a good many of them are, and almost necessarily so from the nature of their organization. The summary dismissal of employés who are in the vigorous prime of life, which often occurs when a new set of officials are installed, is a hardship in numerous instances, but the avenues to new employment are not barred against them. They are not superannuated. They do not feel that if they were ten or fifteen years younger their chances would be a hundred per cent. better. It is not expected, of course, that every railroad company shall organize an almshouse for decrepit and worn-out employés, but the growing practice of discharging men merely because they have reached a certain age should not become an arbitrary rule. It is much better to encourage the opposite practice of pensioning the infirm and aged whose lives have been spent in the continuous service of one road.

THE demand for better facilities for the handling of railroad freights has suggested an improvement in the construction of box-cars, the utility of which is somewhat doubtful. In order to avoid the slow process of loading and unloading through the doors as they are how made it is proposed to have the car body so constructed that the roof can be raised or lifted off and the sides let down so as to afford free access to the interior and enable freight to be handled more expeditiously by means of cranes and hoisting drums. After the car has been emptied or loaded the roof is to be replaced and the sides closed up and held in their normal position by suitable fastenings. This would be a very good arrangement if it were practicable, but manifestly it is not. As freight has to be handled from both sides of the car in loading and unloading, according to the position of the platforms upon which it is received, both of the sides would therefore have to be removable, which would be a serious dislocation of the structure not easily remedied by straps and hinges. The chief advantage of a box-car body over the English tarpaulin system is the protection it affords to valuable freight in boxes and portable parcels, and the framing should therefore be stiff, strong and continuous, and the joints as near water-tight as possible. If a car body that can be unroofed and opened out whenever required is practicable at all it would be more suitable for local freight and short distances than for long trips of a thousand miles or more. Still, it must be admitted that our heavy and increasing railway tonnage makes it very desirable that the vast accumulations of freight at great terminal points should be handled more expeditiously than it now is, and as this is quite out of the question with ordinary box-cars, it would be easy to make a trial of the proposed change in their construction by building one car with let-down sides and removable roof and using it in the way that is suggested.

A DAILY chicken train has been started on the Pennsylvania railroad. They have a passenger Cochin the rear and a locomotive to pullet.—*Pittsburgh Telegraph.*

Wrecking.

This term signifies in railway nomenclature the clearing of wrecked cars from a track. It is something which has to be done as expeditiously as possible, and therefore requires that the person who superintends it should have a cool head, unerring judgment, a perfect knowledge of the wrecking tools he has at his command, and a capacity to decide on the instant what is the right thing to do under circumstances which are never the same in any two cases. We recently witnessed some very quick work of this kind, which was done under the direction of Mr. Robert Blee, Superintendent of the Columbus & Cincinnati Division of the "Bee Line" route. A passenger car, lying on its side at the bottom of a ten-foot embankment, and about 25 feet from the track, was picked up, trucks and all, and placed on the track in one hour and ten minutes. Fully one-half of this time was occupied in waiting for anchor-holes to be dug, there being no trees near enough to fasten to. Two ropes, one at each end of the car body, were passed through the clear-story windows and fastened outside by a loop through which a plank was passed. A tackle and block were hooked to the end of this rope, and the other block to the anchor. An engine was then hitched to each tackle and the car slowly brought to an upright position. Two derrick cars were then placed on the main track, one opposite each end of the wrecked car, a hitch made to the platforms, when, with two men at each derrick, the car was easily pulled up the bank by sliding on two rails. When it was over the track the body was blocked up, the derricks pushed a few feet up the track and the trucks lifted from the ditch and pushed under the passenger car body, which was then lifted so the blocking could be removed and then lowered upon the trucks. No jacks or levers were used, the derrick cars doing all the lifting. They were designed and built by the late W. F. Smith, the former Master Car-Builder of the road, and are models of their kind, consisting of a flat car body, extra heavy and strong, and fitted with ice-tong clamps to grasp the rail and hold the car in position. At one end of the platform is a capstan post, with a broad, flat base firmly bolted to the intermediate sills. A boom attached to a collar resting on balls swings freely around the post. To the lower part of the boom a drum is bolted with which to draw in the chain. The drum is backgeared once for light lifts, and another extra back-gear shaft can be pushed into gear for lifting heavy weights. The car has a maximum capacity for lifting 20 tons, which it can do with ease.

Screw Threads.

It would seem that enough has been said for many years past about screw-threads, and the different forms and standards of the same, to make all railroad men perfectly familiar with the whole subject. A master car-builder, however, who is connected with one of the great lines at the West, informs us that a number of railroad men in his vicinity have been discussing the subject, and are unable to determine whether 12 or 13 threads per inch are the proper number for a ½-inch screw, some of the parties being of the opinion that 12 threads are in accordance with the accepted standard. There are, of course, different "standards," but the one that has been adopted by the Master Mechanics' and Master Car-Builders' Associations, as well as by the Army and Navy Departments of the United States, is the Sellers' system, which is also known as the United States standard. This system was recommended for general adoption by a committee of the Franklin Institute, of Philadelphia, in 1864, and was formally adopted by the Master Car-Builder's Association in 1871, and may now be considered the only standard for machinery, locomotive and car construction. The sides of the threads are sloped at an angle of 60°, and the tops and bottoms are flat, that is, not terminating in a point. Many people will doubtless be confused for a good while yet in regard to the indentity of the system, owing to its triple name—"Franklin Institute," "Sellers," "United States"—but it will ultimately be recognized more by what it really is, as differing from other systems, than by either or all of the names that are now applied to it.

The proportions of the threads have been so often and widely published in tabular form that we deem it unnecessary to insert them here, but will say to our correspondent that the proper pitch for ½-inch screws is 13 threads per inch, according to the Sellers system.

Cast Iron Bearings.

The advantages of cast iron as a bearing are getting to be appreciated by master mechanics. We were shown an engine a short time ago which had cast iron guides on one side and case hardened wrought iron ones on the other. The cross-head on the cast iron guides was also of cast iron without Babbitt, or simply cast iron running on cast iron. The cross-head of the wrought iron guides was fitted with brass gibs, and all had been running some 14 months. The cast iron cross-head had not worn enough to admit a piece of ordinary writing paper between it and the guide bar, while on the brass gib and case hardened guide, an ordinary business card, doubled, passed readily in. The argument against cast iron is that something may hit the bar and break it. This, of course, is possible, but it is evident at the same time that a blow that would break a cast iron guide would seriously cripple a wrought iron one. Many tool makers are putting cast iron spindles and boxes in their lathes, because they will outwear as *bearings* steel spindles in brass or Babbitted boxes. The theory of a perfect bearing, so far as repairs are concerned, requires that the surface which can be the most cheaply produced or renewed should be of the softer metal, but as it applies to cases where the cross-head and guides are both of cast iron, there does not seem to be much to choose, as they are got up in ordinary shops.

Recent Reports of Railway Rolling Stock.

Lehigh Valley.—292 engines; 85 passenger, 45 baggage and express, 2,179 box, 1,609 flat and gondola, 26,155 4-wheel coal, 85 caboose, 13 stock, 30 wreck and tool, 19 supply, 294 gravel and 100 miscellaneous cars—total cars, 30,614.

Wilmington, Columbia & Augusta.—24 engines; 13 passenger, 10 postal and baggage, 368 box and 182 platform cars—total cars, 573.

Providence & Worcester.—34 engines; 47 passenger and 1,639 freight cars—total cars, 1,686.

New York, Lake Erie & Western.—564 engines; 329 passenger, 106 baggage, mail and express, 39 milk, 13,907 freight, 1,645 stock, 10,348 flat and gondola, 2,103 eight-wheel coal, 74 four-wheel coal, 234 caboose, 251 oil tank, 40 gravel, 32 derrick and tool, 2 pay and 5 inspection cars—total cars, 29,123.

Evansville & Terre Haute.—24 engines; 9 passenger, 2 combination, 6 baggage, mail and express, 620 box, 40 stock, 160 flat, 75 coal, 9 caboose, 15 construction and 39 miscellaneous cars—total cars, 975.

Rochester & Pittsburgh.—42 engines; 21 passenger, 5 baggage, mail and express, 488 box, 402 flat, 10 cattle, 1,765 coal, 8 caboose, 48 service and 8 miscellaneous cars—total cars, including Buffalo & Pittsburgh Division, 2,755.

New York, Providence & Boston.—29 engines; 36 passenger, 12 baggage, 158 box, 133 flat, 56 coal and gravel cars, and 2 steam ferry boats. The company also owns a share in 13 passenger, 10 parlor, 2 postal and 9 baggage cars in the Shore Line, and in 13 passenger and 2 baggage cars on steamboat train.

Utica & Black River.—22 engines; 27 passenger, 14 baggage and 381 freight cars—total cars, 422.

Richmond & Allegheny.—21 engines; 16 passenger, 3 sleeping, 10 baggage, mail and express, 192 box, 25 stock, 254 flat, 9 caboose and 1 wrecking car—total cars, 510.

Maine Central.—59 engines; 66 passenger, 23 baggage, 5 postal, 651 box, hay and stock cars, 489 platform and 36 saloon cars—total cars, 1,270.

New York & New England.—117 engines; 136 passenger, 37 baggage, mail and express, 1,496 box, 3 stock, 458 flat, 1,019 coal, 377 dump, 40 caboose and 7 miscellaneous cars—total cars, 2,573. Of these 16 engines and 1,100 box and coal cars are owned by car trusts.

Worcester & Nashua.—20 engines; 19 passenger, 3 parlor, 7 baggage and mail, 263 box, 125 flat, 100 coal and 6 miscellaneous cars—total cars, 523.

Boston & Albany.—245 engines; 206 passenger and 47 baggage and postalcars; 5,220 freight cars; 627 service cars and 11 snow-plows—total cars, 6,111.

Wilmington & Weldon.—26 engines; 17 passenger, 3 combination and 8 mail and baggage cars; 271 box, 10 stock, 135 flat and 7 caboose cars, 1 pay car, 1 wrecking car and 2 bridge cars—total cars, 455.

Fitchburg.—98 engines; 93 passenger, 29 mail and baggage, 2,241 box, 786 flat, 244 coal and other, 24 caboose cars and 9 snow-plows—total cars, 3,421.

New York Central & Hudson River.—632 engines; 428 passenger, 158 baggage, mail and express, and 24,565 freight cars of all classes—total cars, 25,793.

Charlotte, Columbia & Augusta.—21 engines; 9 passenger, 2 sleeping, 9 combination, 4 mail and express, 143 box, 9 stock, 65 flat, 11 caboose and 10 miscellaneous cars—total cars, 265.

Pennsylvania & New York.—64 engines; 631 box, 77 stock, 288 flat and gondola, 1,301 eight-wheel coal, 2,850 four-wheel coal, 31 caboose, 4 wrecking, 58 gravel and 6 shop cars—total cars, 5,246. Passenger cars furnished by Lehigh Valley road.

New Haven & Northampton.—28 engines; 28 passenger train cars, 479 freight and 79 engine cars—total cars, 586.

Hartford & Connecticut Western.—15 engines; 21 passenger and baggage and 429 freight cars—total cars, 450.

THE members of the Master Car-Builders' Association and of the Master Mechanics' Association who attend the conventions of those bodies in Chicago next June, during the national railway exposition, will not be neglected. A meeting to arrange for their entertainment was held by a number of manufacturers of and dealers in railway supplies at the Grand Pacific Hotel, February 3, and an organization was effected by electing officers as follows: President, Mr. E. S. Alexander; treasurer, Mr. John S. Brewer; secretary, Mr. William S. Brewster. The following gentlemen were elected as the executive committee: E. S. Alexander, A. B. Pullman, J. McGregor Adams, Wm. Irving, E. H. Talbott, George W. Morris, Wm. J. Watson, George M. Sargent, Archibald Winne, Morris Sellers and Wm. S. Brewster. Other committees were chosen as follows: Entertainment committee: George W. Morris, Wm. J. Watson, W. A. Angell, Geo. M. Sargent, Archibald Winne and J. M. Rogan. Finance committee: Jno. S. Brown, E. S. Shephard, A. L. Butler, F. K. Bowes, Kossuth Bell, Willard Smith, J. S. Tappan, G. M. Sargent, G. W. P. Atkinson. Invitation and printing committee: Geo. M. Sargent, A. L. Butler, T. A. Griffin, Geo. W. Morris. The names of these gentlemen are sufficient guarantee that the hospitalities of Chicago will be dispensed with a liberal hand.

THE Cliff & Righter Co., manufacturers of railway car springs, have removed their New York city office from the Morse Building to 38 Cortlandt street.

THE *Music Trade Free Press* is a new and lively journal, devoted to the music trade. Its editor and proprietor is W. E. Nickerson—a gentleman thoroughly acquainted with the trade he has undertaken to represent. Among the permanent headings in the neatly-printed copy before us we notice "New Music," "Kindred Trades," "Live Matters," "Pipe Organ Trade," and "Trade Bulletin." The office of publication is 141 East Eighth street, New York, and the subscription price $2 a year.

WASHINGTON IRVING once alluded to a man of superior pomposity, as "a great man, and in his own estimation, a man of great weight. When he goes west he thinks the east tips up."

RAILROAD traveling in India is blessed with variety. The conductor of a passenger train recently telegraphed to the superintendent of the line that there was a tiger on the platform of the station between himself and his train, and asked for instructions as to whether the train should go on without him or should wait until the tiger went away. The heartless superintendent telegraphed back, "Dodge the tiger and bring on your train at once." There is no sequel to the story as printed, and whether the tiger lost a meal or the railway company a conductor must remain a mystery.

Pig Iron Report.—Huffer & Co., of St. Louis, Mo., report (Feb 17):

HOT BLAST CHARCOAL IRONS.

Missouri	21@22
Southern	22½@23
Ohio	27@29

COAL AND COKE IRONS.

Missouri	21@22
Southern	20@22
Ohio	24@26

MILL IRONS.

Red-short	19@21
Neutral	19½@20

CAR WHEEL AND MALLEABLE IRONS.

Missouri	24@25
Southern	25@30
Ohio	25@35

Our Directory.

We note the following changes since our last issue:

Boston, Hoosac Tunnel & Western.—Charles H. Cory is appointed Superintendent, with office at Mechanicsville, N. Y., in place of John L. Butman, resigned.

Brunswick & Albany.—The name of this road has been changed to Brunswick & Western.

Canada Southern.—W. E. Carroll has resigned the position of Superintendent of the Canada Division, and is succeeded by E. B. Murray. Mr. Carroll has gone to the Wisconsin Central.

Chesapeake, Ohio & Southwestern.—D. W. C. Brown is appointed General Superintendent, with office in Louisville, Ky., in place of Robert Meek, resigned.

Chicago, Milwaukee & St. Paul.—E. Fairbairn has been appointed Master Mechanic at Milwaukee in place of Henry Watkeys, who has gone to the New York, Chicago & St. Louis.

Chicago, St. Paul, Minneapolis & Omaha.—John M. Whitman has been appointed General Superintendent in place of Charles F. Hatch, resigned. Mr. Whitman was recently on the Iowa Division of the Chicago & Northwestern.

Chicago & Northwestern.—H. C. Burt, Superintendent of Northern Iowa Division, succeeds J. M. Whitman as Superintendent of Iowa Division.

Cincinnati & Eastern.—S. Woodward has been appointed General Manager. He was recently one of the receivers of the Marietta & Cincinnati road.

Cleve., Col., Cin. & Indianapolis.—John O. Ewan has been appointed Superintendent of Indianapolis Division in place of J. W. Burrows, who is Superintendent of Ind. & St. Louis road.

East Tennessee, Virginia & Georgia.—M. J. Rogers, late of the Pan Handle shops, at Indianapolis, Ia., has been appointed Master Mechanic of the Georgia Division, with office at Atlanta.

Eureka & Palisade.—Byron Gilman has been appointed General Superintendent in place of P. Everts, resigned. Office in Eureka, Nevada.

Galveston, Harrisburg & San Antonio.—A. N. Towne has been appointed General Manager, and the position of General Superintendent is abolished. E. G. Thompson has been appointed Superintendent. James Campbell is Superintendent and J. L. Bonner is Master Mechanic of the El Paso Division; W. G. Van Vleck is Superintendent and J. J. Ryan is Master Mechanic of the San Antonio Division; H. Flanders is Superintendent and D. T. Davis is Master Mechanic of the Houston Division; and W. Irvin is Superintendent and D. C. Smith is Master Mechanic of the Louisiana Division.

Georgia Pacific.—G. J. Foreacre has been appointed Superintendent, headquarters at Atlanta, Ga.

Indianapolis & St. Louis.—T. W. Burrows, Assistant Superintendent of the C., C., C. & I. road, has been transferred to St. Louis as Superintendent of the Indianapolis & St. Louis.

Mexican National.—F. A. Lister has been appointed Superintendent of the Northern Division. He was recently Superintendent of the Camden & Atlantic road.

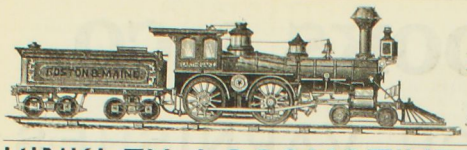
Minneapolis & St. Louis.—C. H. Hudson has resigned the position of General Manager.

Missouri Pacific, Texas & Pacific Division.—J. T. Wheedon has been appointed Superintendent of the New Orleans Division, vice Cecil Fleming, with office at Gouldsboro, La.

Northern Pacific.—J. M. Buckley is appointed Assistant General Manager, and succeeds J. W. Sprague as Manager of the Western Division.

Oregon Railway & Navigation Co.—H. S. Rowe has been appointed Superintendent of the Railway Division.

Wisconsin Central.—W. E. Carroll, late of the Canada Southern road, has been appointed General Superintendent.



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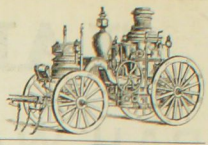

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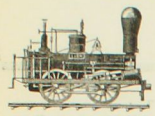

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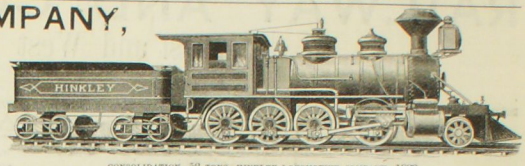

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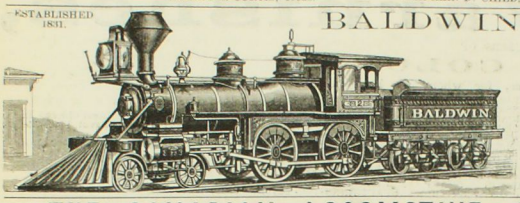

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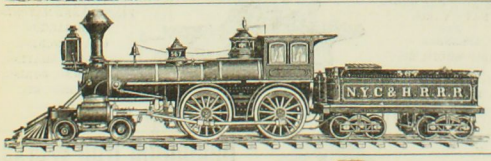

SCHENECTADY LOCOMOTIVE WORKS.

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WALTER McQUEEN, Vice-President.

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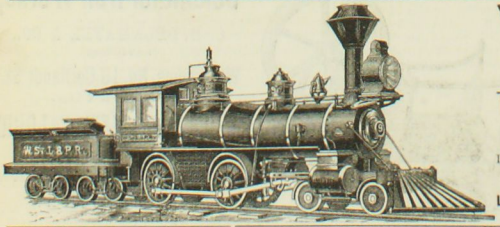

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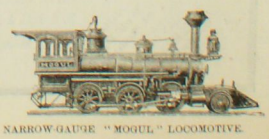

NARROW GAUGE "MOGUL" LOCOMOTIVE.

DIRECTORY

of the Railroads of the United States and Canada, showing the gauge, length of road, number of locomotives and number of cars; and giving the names and titles of their principal officers in charge of the operating, purchasing and rolling stock departments.

A

Adirondack R. R. 4-8½ gauge 60 m. 3 lo. 62 cars.
C. E. Durkee, *Supt* ....Saratoga, N. Y.
Jacob Myers, *M. M* ....Saratoga, N. Y.
Jas. J. Traver, *M. C. B* ....Saratoga, N. Y.
Alabama Great So'n R. R. (*See Cin., N. O. & T. P.*)
Albany & Susquehanna R. R. (*See D. & H. Canal Co.*)
Albert Ry. 4-8½ g. 51 m. 3 lo. 32 cars.
G. A. Robinson, *Manager* ....Hillsboro, N. B.
Jas. McKay, *M. M. & C. B* ......Hillsboro, N. B.
Allegany Central R. R. 3 gauge 30 miles.
Geo. D. Chapman, *Gen. Man* ..Angelica, N. Y.
W. O. Chapman, *Gen. Supt* ...Friendship, N. Y.
Allegheny Valley R. R. 4-9 g. 259 m. 70 lo. 2200 c.
David McCargo, *Gen. Supt. & Pur. Agt.*; and
C. B. Price, *Supt.* (Riv. Div.).....Pittsburg, Pa.
A. A. Jackson, *Supt.*(L.G. Div.).Reynoldsville,Pa.
Geo. W. Glass, *M. M* ....Verona, Pa.
R. Gunning, *M. C. B* ....Verona, Pa.
Annapolis & Elk Ridge R. R. 4-8½ g. 20 m. 4 lo. 29 c.
W. H. Bians, *Supt. & Pur. Agt* ..Annapolis, Md.
John L. Beall, *M. Mach* ....Annapolis, Md.
Arkansas Midland R. R. 5-6 g. 48 m. 4 lo. 45 cars.
A. H. Johnson, *Pr. & Gen. Man* ...Helena, Ark.
J. B. Johnson, *M. M. & M. C. B* ..Helena, Ark.
Ashland Coal & Iron Ry. 4-8½ g. 30 m. 7 lo. 425 c.
Douglas Putnam, Jr., *Gen. Supt* ..Ashland, Ky.
Robt. Peebles, *Pur. Agt* ....Ashland, Ky.
E. M. Roberts, *M. M* ....Ashland, Ky.
Ashtabula & Pittsburgh Ry. (*See Penna. Co.*)
Asheville & Spartanburg R. R. 5 g. 49 m. 2 lo. 12 c.
Jas. Anderson, *Supt. & Pur. Agt*. Spart'b'g, S.C.
Wm. Platt, *M. M* ....Spartanburg, S. C.
W. B. Brown, *M. C. B* ....Spartanburg, S. C.
Atchison, Topeka & Santa Fe R. R.
4-8½ g. 1,900 m. 347 lo. 9,607 cars.
C. C. Wheeler, *Gen. Man* ....Topeka, Kan.
D. J. Chase, *Gen. Supt* ....Topeka, Kan.
W. W. Allen, *Asst. Supt* ....Topeka, Kan.
F. M. Smith, *Pur. Agt* ....Topeka, Kan.
Geo. Hackney, *Supt. Lo. & Car. Dept.* do.
Clem. Hackney, *Asst.Sup.L. & C. Dept.*do.
Eastern Div.: C. M. Rathbun, *Supt*..Topeka, Kan.
Henry Hull, *G. F. Car Dept* ......Topeka, Kan.
John Fagan, *M. M* ....Atchison, Kan.
J. M. Smith, *M. M* ....Kansas City, Mo.
Alfred Taylor, *M. M* ....Emporia, Kan.
Mid. Div.: H. R. Nickerson, *Supt*. Nickerson, Kan.
W. Y. Johnson, *M. M* ....Nickerson, Kan.
J. Q. Adams, *M. M* ....Dodge, Kan.
Col. Div.: W. W. Borst, *Supt* ......La Junta, Col.
A. C. Stiles, *M. M* ....La Junta, Col.
D. H. Dotterer, *M. M* ....Raton, N. M.
Las Vegas D.:Geo. L. Sands,*Supt*.Las Vegas, N.M.
L. H. Waugh, *M. M* ....Las Vegas, N. M.
Rio G. Div.: Geo. L. Sands,*Supt*. Las Vegas, N.M.
J. H. Holman, *M. M* ....Wallace, N. M.
J. W. Sager, *M. M* ....San Marcial, N. M.
H. P. Olcott, *M. M* ....Deming, N. M.
Atlanta & West Point R. R. (*See Western of Ala.*)
Atlantic & Pacific R. R. 4-8½ g. 286 m.
F. W. Smith *Gen. Supt* .....Albuquerque, N. M.
B. W. Angell, *Div. Supt* ....Albuquerque, N. M.
Geo. Chalender, *Supt. M. P. & M.* do.
D. B. Sibley, *Pur. Agt* ....Chicago, Ill.
Augusta & Knoxville R. R. 30 miles.
Gen. Supt & M. M..Augusta, Ga.

B

Baltimore & Ohio R. R.
4-8½ g. 1,539 m. 546 lo. 14,862 cars.
N. S. Hill, *Pur. Agt* ....Baltimore, Md.
E. Ohio Riv. Div. 4-8½ g. 972 m.
W. M. Clements, *Mast. Trans*...Baltimore, Md.
N. E. Chapman, *Mast. of Mach*..Baltimore, Md.
A. J. Cromwell, *Asst. M. of M*...Baltimore, Md.
L. Packard, *M. C. B* ....Baltimore, Md.
I. N. Kalbaugh, *M. M* ....Baltimore, Md.
Wm. Edwards, *M. M*..Martinsburgh, W. Va.
Sam. Houston, *M. M* ......Piedmont, W. Va.
Robert Maxwell, *M. M* ......Cumberland, Md.
S. B. Crawford, *M. M* ......Grafton, W. Va.
Alex. Laird, *M. M* ......Parkersburg, W. Va.
Chas. Hirsch, *M. M* ......Wheeling, W. Va.
Pitts. Div.: T. M. King, *Gen. Supt*... Pittsburg, Pa.
J. E. Sampsell, *Asst. M. of M* Connelsville, Pa.
Trans-Ohio Divs.: B. Dunham, *G. Man* ..Newark, O.
W. H. Harrison, *Asst. M. of Mach*..Newark, O.
E. L. Weisgerber, *M. M* ....Newark, O.
H. M. Ingler, *M. M* ....Bellaire, O.
O. B. Perkins, *M. M* ....Zanesville, O.
Andrew Beckert, *M. M* ....Sandusky, O.
F. J. Gunther, *M. M* ....Chicago Junction, O.
Chi. Div.: John Thomas, *Gen. Supt*.Chicago, Ill.
Benj. Lowther, *M. M* ....Garrett, Ind.
W. H. Wilkinson, *M. M* ....Kingston, Ill.
Baltimore & Potomac R. R. (*See Penna. R. R.*)
Bangor & Piscataquis R. R. 4-8½ g. 63 m. 4 lo. 87 cars.
Arthur Brown, *Supt* ....Bangor, Me.
C. S. Nason, *M. M* ....Bangor, Me.
J. W. Comins, *M. C. B* ....Oldtown, Me.
Barclay R. R. 4-8½ g. 16 miles.
F. F. Lyon, *Supt* ....Barclay, Pa.
J. A. Hardenburg, *Pur. Agt*..21 Cort. st., N. Y.
Wm. Johnson, *M. M* ....Towanda, Pa.
Bedford, Springville, Owensburg & Bloomfield Ry.
3 g. 41 m. 5 lo. 65 cars.
Jas. W. Kennedy, *Gen. Supt. & Pur. Agt.*; and
Capt. Geo. Elliott, *M. M* ....Bedford, Ind.
Richard G. Elliott, *M. C. B* ......Bedford, Ind.
Bellaire, Zanesville & Cin. Ry.Co. 3 g. 42 m. 3 lo. 29 c.
S. J. Cochran, *Mast. Trans* ....Bellaire, O.
Bell's Gap R. R. 3 g. 23 m. 4 lo. 130 cars.
R. G. Ford, *Supt* ....Bellwood (P. O.), Pa.
A. Zimmerman, *M. C. B* ....Bellwood, Pa.
Bennington & Rutland Ry. 4-8½ g. 9 m. 10 lo. 214 c.
F. C. White, *Supt. & Pur. Agt*..Bennington, Vt.
G. W. Blanchard, *M. M* ....Rutland, Vt.
Bingham, Canyon & Camp Floyd, and
Wasatch & Jordan Valley R. R.'s.
3 g. 44 m. 7 lo. 300 cars.
J. G. Kennedy, *Gen. Man* .Salt Lake City, Utah
Geo. M. Young, *Supt* ....do. do.
Bodie Lumber Co. 3 g. 34 miles.
Thomas Holt, *Supt. & Pur. Agt* ....Bodie, Cal.
E. M. Luckett, *M. M. & C. B* ......Bodie, Cal.
Boston, Barre & Gardner. 4-8½ g. 36 m. 7 lo. 107 c.
H.M.Witter, *Supt. & Pur. Agt*.Worcester, Mass.
Chas. F. Brigham, *M. M* ......Worcester, Mass.
Boston, Concord, Montreal & White Mts. R. R.
4-8½ g. 107 m. 34 lo. 677 cars.
James A. Dodge, *Gen. Man* ....Plymouth, N. H.
J. Thos. Vose, *Pur. Agt* ....Boston, Mass.
R. Adams, *M. M* ....Lake Village, N. H.
G. A. Ferguson,*Asst.M. M*..Lake Village, N. H.
L. D. Pickering, *M. C. B*....Lake Village, N. H.
Boston, Hoosac Tunnel & W'n Ry.
4-8½ g. 65 m. 18 lo. 1,038 cars.
H. L. Morrill, *Gen. Man* ....Saratoga, N. Y.
C. H. Cory, *Supt* ....Mechanicville, N. Y.
J. H. Wilder, *Pur. Agt* ......Mechanicville, N. Y.
C. H. Corey, *M. M* ....Mechanicville, N. Y.
John S. Ellis, *M. C. B* ......Mechanicville, N. Y.
Boston, Revere Beach & Lynn R. R. 3 g. 9 m. 5 lo. 46 c.
L. C. Legro, *M. of Trans* ....Boston, Mass.
C. A. Hammond, *Supt. & P. Agt*.Boston, Mass.
J. L. Folsom, *M. M* ....Boston, Mass.
John Coghlan, *M. C. B* ....Boston, Mass.
Boston & Albany R. R. 4-8½ g. 372 m. 245 lo. 6,111 c.
W. H. Barnes, *Gen. Supt* ....Boston, Mass.
E. Gallup, *Asst. Supt* ....Springfield, Mass.
A. B. Underhill, *Supt. M. P*...Springfield, Mass.
F. D. Adams, *Gen. M. C. B* ......Allston, Mass.
H. B. Chesley, *Div. Supt* ....Boston, Mass.
G. H. Colby, *Div. M. M* ....Boston, Mass.
C. E. Grover, *Div. Supt* ......Springfield, Mass.
H. W. Eddy, *Div. M. M* ......Springfield, Mass.
J. B. Weston, *For. Car Sh*.Springfield, Mass.
W. H. Russell, Jr., *Div. Supt*.E. Albany, N. Y.
T. B. Purvis, *Div. M. M* ....East Albany, N. Y.
J. E. Doran, *For. Car Sh*..East Albany, N. Y.

Boston & Lowell and Concord R. Rs.
4-8½ g. 300 m. 110 lo. 2,211 cars.
H. C. Sherburne, *Man* ....Boston, Mass.
F. H. Nourse, *Pur. Agt* ....Boston, Mass.
J. F. Crockett, *M. Trans* ....Boston, Mass.
Concord Divs.:
H. E. Chamberlain,*Supt.& P. A*.Concord, N. H.
J. T. Gordon, *M. M. & C. B*....Concord, N. H.
Boston & Maine R. R. 4-8½ g. 206 m. 89 lo. 2,100 c.
J. T. Furber, *Gen. Supt. & P. A*..Boston, Mass.
Geo. J. Fisher, *Pur. Agt* ....Boston, Mass.
Wm. Smith, *M. M* ....Boston, Mass.
D. C. Richardson, *M. C. B*......Lawrence, Mass.
Boston & Providence R.R. 4-8½ g.67 m. 52 lo.1,006 c.
A. A. Folsom, *Gen. Supt* ....Boston, Mass.
Geo. Richards, *M. M* ....Roxbury, Mass.
Jno. Lightner, *M. C. B* ....Roxbury, Mass.
Bradford, Bordell & Kinzua R. R. 3 g. 30 m. 6 lo. 80 c.
B. C. Williams, *Supt. & Pur. Agt*..Bradford, Pa.
John Delaney, *M. M. & C. B* ....Bradford, Pa.
Bradford, Eldred & Cuba R.R. (*See Tonawanda,etc.*)
Breakwater & Frankford R. R. (*See Junc. & Break.*)
Brighthope Ry. 3 g. 37 m. 3 lo. 193 cars.
Jas. R. Worth, *Supt* ....Richmond, Va.
A. Gary, *Supt. Way & Works*.Winterpock, Va.
Alex. Calder, *M. M* ....Chester, Va.
Brunswick & Western R. R. 5 g. 172 m. 13 lo. 170 c.
R. D. Meader, *Supt* ....Brunswick, Ga.
Buff.,N.Y.& Phila.Ry.3 &4-8½ g. 242 m. 48 lo. 3,500 c.
Geo. S. Gatchell, *Gen. Supt* ......Buffalo, N. Y.
W. W. Halsey, *Asst. to G. Supt*..Buffalo, N. Y.
J. H. Poole, *Pur. Agt* ....Buffalo, N. Y.
Allen Vail, *Supt. M. P. & M* ....Buffalo, N. Y.
Buff. Div.: J. T. Gardiner, *Supt* ....Buffalo, N. Y.
Roch. Div.: R. M. Patterson, *Supt*.Rochester,N.Y.
N. G. Div.: J. W. Watson, *Supt* ......Olean, N. Y.
Buff., Pittsburg & W'n R. R.4-8½ g. 156 m. 33 l. 975 c.
O. Watson, *Gen. Supt.& Pur.Agt*.Buffalo, N. Y.
E. H. Witter, *Asst. Supt* ....Oil City, Pa.
H. J. Bookhammer, *M. M* ....Oil City, Pa.
John Monks, *M. C. B* ....Oil City, Pa.
Burlington, Cedar Rapids & Northern Ry.
4-8½ g. 713 m. 73 lo. 2,738 cars.
C. J. Ives, *Gen. Supt* ....Cedar Rapids, Ia.
Robt. Williams, *Supt* ....Cedar Rapids, Ia.
T. Stickney, *Pur. Agt* ....Cedar Rapids, Ia.
R. W. Bushnell, *M. M. & C.B*.Cedar Rapids, Ia.
Burlington & Lamoille R. R. 4-8½ g. 35 m. 4 lo. 64 c.
G. L. Linsley, *Gen. Man.& Supt*.Burlington, Vt.
F. G. Brownell, *M. M., & C. B. & P. A.* do.
Burlington & Mo. Riv. R. R. (in Neb.) (*See C., B. & Q.*)
Burlington & North-West'n Ry. 3 g. 38 m. 3 lo. 85 c.
John T. Gerry, *Supt* ....Burlington, Ia.
Burlington & Ohio River R. R.
Gen. Man.& Pur. Agt.Chicago,Ill.
J. K. Lape, *Supt. of Equip* ....Chicago, Ill.

C

California Southern R. R. 4-8½ g. 127 m. 13 lo. 301 c.
J. N. Victor, *Supt* ....National City, Cal.
Berkley Powell, *Mech. Supt*..National City, Cal.
Camden & Atlantic R. R. 4-8½ g. 79 m. 16 lo. 264 c.
Supt & Pur. Agt....Camden, N. J.
Rufus Hill, *M. M* ....Camden, N. J.
Samuel Wills, *M. C. B* ....Camden, N. J.
Canada Southern Ry. 4-8½ g. 403 m. 89 l. 3,367 c.
W. P. Taylor, *Gen. Man* ....Buffalo, N. Y.
A. F. Howland, *Pur. Agt*......St. Thomas, Ont.
W. A. Short, *Gen. M. M* ......St. Thomas, Ont.
Rob't Potts, *Gen. M. C. B*......St. Thomas, Ont.
Can. Div.: E. P. Murray, *Supt*..St. Thomas, Ont.
Robert Potts, *M. C. B* ......St. Thomas, Ont.
U. S. Div.: E. P. Murray, *Supt* ....Detroit, Mich.
O. P. Dunbar, *M. M* ....Grosse Isle, Mich.
Canadian Pacific R. R. 4-8½ g. 551 m. 26 lo. 473 c.
W. C. Van Horne, *Gen. Man*....Winnipeg, Man.
Eastern Div. 240 m. 16 lo. 276 cars.
Archer Baker, *Gen. Supt* ......Montreal, Can.
Tho. Irwin, *Mech. Supt* ......Brockville, Ont.
Western Div. 311 m. 10 lo. 207 cars.
A. B. Stickney, *Gen. Supt*....Winnipeg, Man.
T.W. Shaughnessy, *Pur. Agt*.Winnipeg, Man.
F.C.Butterfield,*M.M.& M.C.B*.Winnipeg,Man.
Cape F'r & Yadkin Val. R. R. 4-8½ g. 47 m. 3 lo. 31 c.
L. C. Jones, *Gen. Supt* ......Fayetteville, N. C.
Isaac W. Clark, *M.M.& C.B*. Fayetteville, N. C.
Carolina Central R. R. (*See Ral. & Aug.*)
Carson & Colorado R. R. (*See Va. & Truckee*).
Catasauqua & Fogelsville. 4-8½ g. 25 m. 6 lo. 577 c.
C. W. Chapman, *Supt. & P. A*.Catasauqua, Pa.
J. Thomas, *M. M* ....Hokendauqua, Pa.
Chas. J. Holbach, *M. C. B*.....Catasauqua, Pa.
Central and South-Western Railroads (Ga.).
5 g. 975 m. 127 lo. 1,858 cars.
W. G. Raoul, *V. P. and G. Man*.Savannah, Ga.
Wm. Rogers, *Gen. Supt* ....Savannah, Ga.
Henry Yonge, *Pur. Agt* ....Savannah, Ga.
Cen. Div.: D. D. Arden, *M. M*......Savannah, Ga.
John McCann, *M. M* ....Augusta, Ga.
R. M. Barthlemess, *M. C. B*....Savannah, Ga.
So.-West'n Div.: W. F. Shellman, *Supt*.Macon, Ga.
D. M. Gugel, *M. M* ....Macon, Ga.
James A. Knight, *M. C. B* ....Macon, Ga.
Central R. R. of N. J. 4-8½ g. 544 m. 294 lo. 27,198 c.
W. W. Stearns, *Gen. Supt* ......Elizabeth, N. J.
B. W. Burnett, *Pur. Agt* ......New York, N. Y.
Cen Div.: W. Woodcock, *M.M*.Elizabethport, N. J.
Geo. Hackett, *M. C. B* ......Elizabethport, N. J.
C. G. Williams, *M. M* ....Jersey City, N. J.
John Alpaugh, *M. M* ....Phillipsburg, N. J.
LongBr.Div.:J.F.Randolph,*Supt*.Long Branch,N.J.
N.J.So.Div.: R.Blodgett, *Supt*...Manchester,N.J.
Wm. Montgomery, *M.M* ....Manchester, N. J.
Chas. N. Sawyer, *M.C.B* ....Manchester, N. J.
Lehigh & Susquehanna Div.:
W. S. Polhemus, *Supt* ......Mauch Chunk, Pa.
L. C. Brastow, *Supt. Mach* ....Ashley, Pa.
Central R. R. of S. C. (*See Wil. & Wel.*)
Central Iowa Ry. 4-8½ g. 354 m. 49 lo. 1,959 cars.
D. N. Pickering, *Gen. Supt*...Marshalltown, Ia.
John Player, *M. M* ....Marshalltown, Ia.
T. L. Seevers, *M. C. B* ......Marshalltown, Ia.
Central Pac. R. R. 4-8½ g. 3,780 m. 269 lo. 7,277 c.
A. N. Towne, *Gen. Man* ......San Francisco, Cal.
J. A. Fillmore, *Gen. Supt*...San Francisco, Cal.
R. H. Pratt, *A. G. Supt* ......San Francisco, Cal.
J. R. Watson, *Gen. Pur. Agt*.Sacramento, Cal.
A. J. Stevens, *Gen. M. M*.....Sacramento, Cal.
W. McKenzie, *Asst. G. M. M*..Sacramento, Cal.
Benj. Welch, *Gen. M. C. B* ....Sacramento, Cal.
G. J. Turner, *Asst. G. M. C. B*.Sacramento, Cal.
Western: Visalia& Tulare Divs.and Northern Ry.
A. D. Wilder, *Supt* ....W. Oakland, Cal.
G. D. Welch, *M. M.* (W. Div.) W. Oakland, Cal.
W. B. Ludlow, *M. C. B.* (W.Div.) do.
S. Johnson, *M. M.* (T. Div.)......Tulare, Cal.
D. Rutherford, *M. M.* (N. Rd.).S. Vallejo, Cal.
Sacramento: Oregon Divs.: and Cal. Pac. R. R.
J. B. Wright, *Supt* ....Sacramento, Cal.
M. W. Cooley, *M. M. (S Div.)*.Sacramento, Cal.
Truckee Div.: Frank Free, *Supt*. Wadsworth, Nev.
Geo. Gregg, *M. M* ....Wadsworth, Nev.
Wm. McPherson, *F. Car Sh*..Wadsworth, Nev.
Humb't Div.: G. W. Coddington, *Supt*.Carlin,Nev.
W. F. Smith, *M. M* ....Carlin, Nev.
J. C. Doughty, *For. Car Sh* ......Carlin, Nev.
Salt Lake Div.: A. G. Fell, *Supt* ....Ogden, Utah.
James Lamb, *M. M* ....Terrace, Utah.
A. Sherburne, *For. Car Sh* ......Ogden, Utah.
Los Angeles; and Yuma Divs. (So. Pac.):
E. E. Hewitt, *Asst. Supt*....Los Angeles, Cal.
James Velsir, *M. M* ....Los Angeles, Cal.
T. T. Gilleland, *For.Car Sh*.Los Angeles, Cal.
Arizona Divs. (So. Pac.):
A. A. Bean, *Asst. Supt* ....Tucson, Ariz.
W. F. Smith, *M. M* ....Tucson, Ariz.
Rio Grande and El Paso Divs. (So. Pac.):
J. Campbell, *Ass't Supt* ....El Paso, Texas.
H. C. Standish, *For. Sh* ......El Paso, Texas.
Central Vermont R. R. 4-8½ g. 548 m. 132 lo. 2,522 c.
J. W. Hobart, *Gen. Supt* ....St. Albans, Vt.
J. M. Foss, *Asst. Gen. Supt. & M. M*.St. Albans, Vt.
No. Div.: I. B. Futvoye, *Supt* ....St. Johns, P. Q.
Rut. Div.: J. Burdett, *Supt* ....Rutland, Vt.
N. L. Davis, *M. M. & C. B* ....Rutland, Vt.
Brat. Div.: E. F. Brooks, *Supt* ....Brattleboro, Vt.
New London & No'n R. R. 143 m. 22 lo. 303 c.
G. W. Bentley, *G.Supt.& P.A*...New London, Ct.
I. W. Dow, *M. M* ....New London, Ct.
S. O. Banks, *M. C. B* ....New London, Ct.

Charleston & Savannah Ry. 5 g. 11_ m. 17 lo. 98 c.
H. S. Haines, *Gen. Man* ....Savannah, Ga.
C. S. Gadsden, *Gen. Supt* ......Charleston, S. C.
H. A. Ulmo, *M. M* ....Savannah, Ga.
Charlotte, Columbia & Augusta R. R. (*See Rich. & D.*)
Chateaugay R. R. 3 g. 34 m. 6 lo. 125 cars.
A. L. Inman, *Gen. Man* ......Plattsburg, N. Y.
J. M. Davis, *Supt. & M. M* ....Plattsburg, N. Y.
Chattaroi Ry. 4-8½ g. 43 miles 11 loco. 483 cars.
C. H. Rockwell, *Gen. Man.&P.A*.Ashland, Ky.
J. R. Martin, *M. M* ....Ashland, Ky.
Joseph P. Burleigh, *M. C. B* ......Ashland, Ky.
Cheraw & Chester R. R. 3 g. 30 m. 3 lo. 38 cars.
W. H. Harding, *Pres. & Supt*.....Chester, S. C.
A. M. Manning, *M. M* ....Chester, S. C.
Cheraw & Darlington R. R. (*See Wil. & Wel.*)
Cheraw & Salisbury R. R. (*See Wil. & Wel.*)
John Postel, *Manager* ....Cedartown, Ga.
C. E. Scruton, *M. M. & C. B*....Cedartown, Ga.
Chesapeake, Ohio & So.-W'n 4-9 g. 398 m. 39 lo. 989 c.
D. W. C. Brown, *G. S. & Pur. Agt.*,
Louisville, Ky.
F. H. Britton, *Mast. Trans* ......Paducah, Ky.
W. D. Robb, *S. M. P. & M*..Elizabethtown, Ky.
Geo. Dickey, *M. M* ......Elizabethtown, Ky.
H. A. Wentzell, *M. M* ....Paducah, Ky.
Chesapeake & Ohio Ry. 4-8½ g. 642 m. 133 l. 3,543 c.
C. W. Smith, *Gen. Man* ....Richmond, Va.
D. A. Sweet, *Asst. to Gen. Man*.Richmond, Va.
A. H. Wood, *Ass't.Gen.Supt.*, Huntington,W. Va.
A. S. Emmons, *Pur. Agt* ....Richmond, Va.
John McFarland, *Supt. M. P*....Richmond, Va.
Eastern Div.: E. T. Smith, *Supt*..Richmond, Va.
J. N. King, *M. C. B* ....Richmond, Va.
Hunt. Div.: W. P. Harris, *Supt*....Hinton, W. Va.
T. L. Chapman, *Asst. Supt. M. P.*, and
H. C. Bassinger, *M. C. B*.Huntington, W. Va.
Lex. Div.: J. D. Yarrington, *Supt*.Lexington,Ky.
Cheshire R. R. 4-8½ g. 80 m. 30 lo. 490 cars.
R. Stewart, *Gen. Man* ....Keene, N. H.
H. H. Stone, *Pur. Agt* ....Keene, N. H.
F. A. Perry, *M. M* ....Keene, N. H.
A. E. Howard, *G. For. Car Sh*....Keene, N. H.
Chester & Lenoir Ry. 3 g. 50 m. 3 lo. 23 cars.
James Mason, *Supt* ....Yorkville, S. C.
T. P. Beard, *M. M* ....Yorkville, S. C.
Chicago, B. & Kan. City Ry. 4-8½ g.181 m.9 lo. 130 c.
Robt. Law, *Gen. Supt* ....Keokuk, Ia.
W. H. Bartlett, *Act. M. M* ......Burlington, Ia.
Chicago, Burlington & Quincy R. R.
4-8½ g. 2,924 m. 521 lo. 18,955 cars.
T. J. Potter, *Gen. Man* ....Chicago, Ill.
(1) C., B. & Q., East of Mo. Riv. 1,938 miles.
H. B. Stone, *Gen. Supt* ....Chicago, Ill.
Geo. C. Smith, *Pur. Agt* ....Chicago, Ill.
G. W. Rhodes, *Supt. M. P* ....Aurora, Ill.
Wm. Forsyth, *Mech. Eng* ....Aurora, Ill.
Ill. Divs.: J. D. Besler, *Supt* ......Galesburg, Ill.
Chi. Div.: Geo. Alexander, *Supt*.....Aurora, Ill.
L. E. Johnson, *M. M* ....Aurora, Ill.
Galesburg Div.: F. C. Rice, *Supt*.Galesburg, Ill.
Robert Colville, *M. M* ....Galesburg, Ill.
St. L. Div.: S. E. Crance, *Supt*......St. Louis, Mo.
A. Forsyth, *M. M* ....Beardstown, Ill.
Ia. & Mo. Divs.: *Supt*..Burlington, Ia.
East. Div.: O. E. Stewart, *Supt*..Burlington, Ia.
Joel West, *M. M* ....Burlington, Ia.
Mid. Div.: J. B. Maxon, *Supt* ....Ottumwa, Ia.
West'n Div.: W. B. Ryder, *Supt*.... Creston, Ia.
C. W. Eckerson, *M. M* ....Creston, Ia.
(2) C., B. & Q., West of Mo. Riv. 935 miles.
G. W. Holdrege, *Gen. Supt* ......Omaha, Neb.
Jas. M. Barr, *Pur. Agt* ....Omaha, Neb.
D. Hawksworth, *Gen. M. M*..Plattsmouth, Neb.
Bur. & Mo. Riv. & Neb. Ry. Divs.:
D. E. Thompson, *Supt* ....Lincoln, Neb.
E. Bignal, *M. M* ....Lincoln, Neb.
R. V. Div.: A. Campbell, *Supt*.....Hastings, Neb.
A. & N. Div.: J. McConniff, *Supt*...Lincoln, Neb.
Chicago, Milwaukee & St. Paul R. R.
4-8½ g. 4,383 m. 425 lo. 13,659 cars.
S. S. Merrill, *Gen. Man* ......Milwaukee, Wis.
J. T. Clark, *Gen. Supt* ....Milwaukee, Wis.
J. T. Crocker, *Pur. Agt* ....Milwaukee, Wis.
J. M. Lowry, *Gen. M. M* ......Milwaukee, Wis.
John Baillie, *Supt. Car Dept*...Milwaukee, Wis.
E. Fairbairn, *M. M* ....Milwaukee, Wis.
(1) H. C. Atkins, *Asst. Gen. Supt*..Milwaukee, Wis.
Chi. Div.: S. J. Collins, *Supt* ....Chicago, Ill.
La Crosse Div: W.G.Collins,*Supt*.Milwaukee,Wis.
C. Bluffs Div.: A. J. Earling,*Supt*... Marion, Ia.
P. du C. & M. Pt. Divs.:
R. B. Campbell, *Supt* ....Milwaukee, Wis.
(2) C. H. Prior, *Asst. Gen. Supt* Minneapolis, Minn.
H. & D. Div.: C. W. Case, *Supt*.Minneapolis, Minn.
J. O. Pattie, *M. M* ....Minneapolis, Minn.
Ia. & Minn. Div.: H. R. Williams, *Supt*. do.
So. Minn. & River Divs.:
F. D. Underwood, *Supt* ....La Crosse, Wis.
Ia.& Da.Div.: G.W.Sanborn, *Supt*.Mason City, Ia.
S. Cy.& Da. Div.: J. Jackson,*Supt*.Sioux City,Ia.
F. H.Moulton, *M. M* ....Yankton, Dak.
Dubuque Div.: J. H. Jenkins, *Supt*..Dubuque, Ia.
S. Charnley, *M. M* ....Dubuque, Ia.
(3) D. A. Olin, *Asst. Gen. Supt* ....Racine, Wis.
So.-Wn Divs.: D. L. Bush, *Supt*......Racine, Wis.
John Taylor, *M. M* ....Racine, Wis.
E. A. Eddy, *M. C. B* ....Racine, Wis.
Northern Div.: L. B. Rock, *Supt*..Milwaukee, Wis.
Wm. E. Kittredge, *M. C. B*..Milwaukee, Wis.
Chicago, Pekin & So.-Wn.R.R. 4-8½ g. 88 m. 8 lo. 455 c.
A. H. Crocker, *Rec* ....Joliet, Ill.
J. N. Chilson, *M. C. B* ....Streator, Ill.
Chicago, Rock Island & Pac. Ry.
4-8½ g. 1,381 m. 300 lo. 7,700 cars.
R. R. Cable, *V. P. & Gen. Man*....Chicago, Ill.
A. Kimball, *Gen. Supt* ....Chicago, Ill.
F. A. Marsh, *Pur. Agt* ....Chicago, Ill.
T. B. Twombly, *Gen. M. M* ......Chicago, Ill.
B. K. Verbryck, *Gen. M. C. B*......Chicago, Ill.
Ill. Div.: R. H. Chamberlin, *Supt*.....Chicago, Ill.
R. Biester, *M. M* ....Chicago, Ill.
Sam'l Pullman, *M. C. B* ....Chicago, Ill.
Ia. Div.: H. F. Royce, *Supt* ......Des Moines, Ia.
J. G. Crockett, *M. M* ....Stuart, Ia.
Jas. E. Morrill, *M. M* ....Davenport, Ia.
Chas. M. Leonard, *M. C. B*......Davenport, Ia.
So.-Wn. Div.: G. F. Walker, *Supt*.....Trenton, Ia.
R. O. Carscadin, *M. M* ....Trenton, Ia.
Chas. R. Best, *M. C. B* ....Trenton, Ia.
K. & Des. M. Div.: Jno. Given, *Supt*...Keokuk, Ia.
S. W. Wakefield, *M. M* ....Keokuk, Ia.
Henry Kummer, *M. C. B* ....Keokuk, Ia.
Chi., Saginaw & Can. R. R. 4-8½ g. 38 m. 4 lo. 16 c.
J.A.Elwell, *Gen. Man.& Pur. Agt*.St.Louis,Mich.
Jas. T. Hall, *Supt* ....St. Louis, Mich.
Chicago, St. Louis & New Orleans R. R.
4-8½ g. 571 m. 101 lo. 1,913 cars.
J. C. Clarke, *V. P. & G. Man*..New Orleans, La.
L. T. Brien, *Asst. Gen. Man*..New Orleans, La.
C. M. Sheafe, *Gen. Supt*......New Orleans, La.
H. B. Febiger, *Pur. Agt* ......New Orleans, La.
W. H. Purdy, *Supt. Mach*..McComb City, Miss.
Geo. W. Baxter, *M. C. B*...McComb City, Miss.
So. Div.: E. D. Anderson, *Acting Supt* do.
W. P. McKinley, *M. M*....McComb City, Miss.
No. Div.: J. G. Mann, *Supt* ......Jackson, Tenn.
J. M. Keith, *M. M* ....Jackson, Tenn.
J. F. White, *M. M* ......Water Valley, Miss.
Chicago, St. Paul, Minneapolis & Omaha Ry.
4-8½ g. 1,037 m. 131 lo. 4,088 cars.
J. M. Whitman, *Gen. Supt* ......St. Paul, Minn.
W. H. S. Wright, *Pur. Agt* ......St. Paul, Minn.
Matt. Ellis, *M. M* ....St. Paul, Minn.
W. B. Rice, *M. C. B* ....St. Paul, Minn.
Ea. Div.: A. A. Hobart, *Supt* ......St. Paul, Minn.
No. Div.: T. P. Gere, *Supt* ......St. Paul, Minn.
St. Paul Div.: J. F. Lincoln, *Supt*.St. Paul, Minn.
Sioux City Div.: H. Spencer, *Supt*.Sioux City, Ia.
F.W. Heintselman,*Gen. For.Sh*.Sioux Cy, Ia.
Neb. Div.: G. V. Morford, *Supt* ......Omaha, Neb.
Chicago, Texas & Mexican Central Ry.
4-8½ g. 52 m. 4 lo. 60 cars.
Gen. Supt ....Dallas, Tex.
Chas. Howard, *Pur. Agt* ....Chicago, Ill.
Chicago & Alton R. R. 4-8½ g. 840 m. 213 lo. 6,148 c.
J. C. McMullin, *Gen. Man* ....Chicago, Ill.
C. H. Chappell, *Act. Gen. Man*....Chicago, Ill.
W. F. Merrill, *Gen. Supt* ....Chicago, Ill.

A. V. Hartwell, *Pur. Agt* ....Chicago, Ill.
Wm. Wilson, *Supt. of Mach*....Bloomington, Ill.
Jos. Townsend, *G. For. Car Dept.* do.
Chi. Div.: A. M. Richards, *Supt*..Bloomington, Ill.
St. Louis Div.: T. M. Bates, *Supt*..Roodhouse, Ill.
Kan. Cy. Div.:O. Vaughan, *Supt* ......Slater, Mo.
Wm.McPhail, *M. M* ....Slater, Mo.
Chi. & East'n Ill. 4-8½ g. 248 m. 56 lo. 3,500 cars.
O. S. Lyford, *Gen. Supt* ....Chicago, Ill.
D. R. Patterson, *Pur. Agt*.........Chicago, Ill.
P. W. Drew, *M. Trans* ....Chicago, Ill.
Allen Cooke, *M. M* ....Danville, Ill.
Chicago & Grand Trunk Ry. (*See Grand Trunk.*)
Chicago & Iowa R. R. 4-8½ g. 104 m. 16 lo. 237 cars.
T. J. Potter, *Gen. Man* ....Chicago, Ill.
W. H. Holcomb, *Gen. Supt*.........Rochelle, Ill.
H. S. Bryan, *M. M* ....Aurora, Ill.
Chicago & Northwestern Ry.
4-8½ g. 3,476 m. 558 lo. 18,685 cars.
Marvin Hughitt, *2d V. Prs. & G. M*.Chicago, Ill.
J. D. Layng, *Gen. Supt* ....Chicago, Ill.
R. W. Hamer, *Pur. Agt* ....Chicago, Ill.
Geo. W. Tilton, *Supt. M. P. & M.*; and
J. M. Boon, *A. Supt. M. P. & M*....Chicago, Ill.
Wis. and Mil. Divs. & Sheboygan & W'n Ry.:
Chas. D. Gorham, *Supt* ....Chicago, Ill.
Gal. Div.: Chas. Murray, *Supt* ......Chicago, Ill.
Pen'r Div.: W. B. Linsley, *Supt*....Escanaba, Mich.
Geo. H. White, *M. M* ....Escanaba, Mich.
Mad. Div.: C. A. Swineford, *Supt*..Baraboo, Wis.
Win. & St. P. Div.: S. Sanborn, *Supt*.Winona, Minn.
W. A. Scott, *M. M* ....Winona, Minn.
Dak. Cen. Ry.: T. J. Nicholl, *Supt* ....Huron, Dak.
Ia. Div.: M. Hopkins, *Supt* ....Clinton, Ia.
Geo. W. Lowe, *M. M. & M. C. B* Clinton, Ia.
No. Ia. Div.: H. G. Burt, *Supt*.... Eagle Grove, Ia.
Chicago & West Michigan:
4-8½ g. 409 m. 43 lo. 1,345 cars.
Geo. C. Kimball, *V. P. & G. Man*.Muskegon, Mich.
C. Harris, *Gen. Supt* ....Muskegon, Mich.
H. Park, *Pur. Agt* ....Muskegon, Mich.
W. F. N. Davis, *M. M* ....Muskegon, Mich.
Cincinnati, Columbus & Hocking Val. Ry.
4-9 g. 25 m. 1 lo. 27 cars.
J. E. Gimperling, *Gen. Man* ....Dayton, O.
Geo. F. Robinson, *Supt* ......Washington, O.
Cin., Georgetown & Portsmouth. 3 g. 35 m. 2 lo. 39 c.
M. Simmons, *Supt* ....Cincinnati, O.
J. C. Homer, *M. M* ....Cincinnati, O.
Cincinnati, Green Riv. & Nashville R. R. 3 g.
A. C. Sim, *Supt* ....King's Mountain, Ky.
G. Brashears, *Pur. Agt* ....Cincinnati, O.
Cincinnati, Hamilton & Dayton R. R.
Geo. S. Griscom, *Gen. Supt*......Cincinnati, O.
John Black, *Gen. M. M* ....Lima, O.
W. H. H. Allison, *M. C. B*.........Cincinnati, O.
C. R. & C. Div.: W. S. Brewer, *M. M*.Richm'd, Ind.
Cincinnati, Indianapolis, St. Louis & Chicago Ry.
4-8½ g. 370 m. 71 lo. 3,279 cars.
J. W. Sherwood, *Supt* ......Indianapolis, Ind.
Geo. Tozzer, *Pur. Agt* ....Cincinnati, O.
J. S. Patterson, *M.of Mach.& M.C.B*.Cincinn., O.
Cincinnati, New Orleans & Texas Pacific Ry. Co.
5 g. 841 m. 123 lo. 2,687 cars.
John Scott, *V. Pres. & Gen. Man*..Cincinnati, O.
R. W. Healey, *Gen. Pur. Agt*.....Cincinnati, O.
James Meehan, *Gen. M. M* ......Cincinnati, O.
Cin. So. Div.: R. Carroll, *Gen. Supt*..... Cin., O.
I. W. Fowle, *M. M* ....Cincinnati, O.
John Richardson, *M. C. B*......Cincinnati, O.
A. Thomson, *M. M* ....Chattanooga, Tenn.
Ala. Gr. S'n Div.: C. B. Wallace, *Gen. Supt*.. and
George Manuell, *M. M*....Chattanooga, Tenn.
Fred Morgan, *M. C. B*...Chattanooga, Tenn.
V. & M. Div.: E. F. Raworth, *G. S*.Vicksburg, Miss.
James B. Browne, *M. M*.....Vicksburg, Miss.
V. S. & P. Div.: F. Y. Dabney, *Supt*..Monroe, La.
W. Bell Smith, *M. M. & C. B*....Monroe, La.
Cincinnati Northern Ry. 3 g. 30 m. 4 lo. 60 c.
G. L. Barringer, *Gen. Man* ......Cincinnati, O.
T. J. Hamer, *M. M. & C. B*......Cincinnati, O.
Cincinnati, Selma & Mobile R.R. 5 g. 71 m. 6 lo. 135 c.
D. McLaren, *Supt* ....Selma, Ala.
H. L. Wright, *Pur. Agt* ....Selma, Ala.
J. M. Levis, *M. M* ....Marion, Ala.
Cincinnati Southern Ry. (*See Cin., N. O. & Tex. Pac.*)
Cin.,Wabash & Mich. Ry. 4-8½ g. 165 m. 13 lo. 290 c.
Norman Beckley, *Gen.Man.&P.A*.Elkhart, Ind.
O. W. Lamport, *Supt* ....Wabash, Ind.
S. B. Tinker, *M. M. & M. C. B*....Wabash, Ind.
Cincinnati & Eastern Ry. 3 g. 76 m. 4 lo. 66 cars.
S. Woodward, *Gen. Man* ....Cincinnati, O.
P. W. Naughton, *M. M* ....Cincinnati, O.
Clarksburg, Weston & Glenville R. R.
3 g. 26 m. 3 lo. 28 cars.
A. H. Kunst, *Pres.and Gen.Man*.Weston,W.Va.
Sam. A. Steel, *M. M* ....Weston, W. Va.
F. Dillie, *M. C. B* ....Nottingham, O.
Cleveland, Columbus, Cincinnati & Indiana and Indianapolis & St. Louis Rys. and Dayton & Union R. R. 4-8½ g. 780 m. 246 lo. 7,082 cars.
E. B. Thomas, *Gen. Man* ....Cleveland, O.
J. L. Yale, *Pur. Agt* ....Cleveland, O.
W. F. Turreff, *Gen. M. M* ....Cleveland, O.
Robt. Wiggins, *Gen. For* ....Delaware, O.
Col. & Cin. Div.: Robt. Blee, *Supt* .Cleveland, O.
W. L. Gilmore, *M. M* ....Cleveland, O.
A. G. Steinbrenner, *G. For. Car Dept.* do.
Ind'p'lis Div.: John O. Ewan, *Supt*..Ind'polis, Ind.
J. K. Lape, *M. M* ....Brightwood, Ind.
N. Mark, *G. For. Car Dept*.Brightwood, Ind.
Ind.& St L. Ry.: Tho. Burrows, *Supt*.St. Louis, Mo.
T. W. Ranson, *M. M. & C. B*....Mattoon, Ill.
Day. & Un. Rd.: J. H. Barrett, *Supt*.Cincinnati,O.
H. S. Gordon, *M. M* ....Dayton, O.
Cleveland, Mt. Vernon & Delaware R. R.
4-9 g. 144 m. 22 lo. 751 c.
N. Monsarrat, *Gen. Supt* ....Akron, O.
G. M. Taylor, *M. M. & C. B*.....Mt. Vernon, O.
Cleve., Youngstown & Pitts. R. R. 3 g. 30 m. 3 lo. 112 c.
W. E. Lewis, *Gen. Supt* ....Alliance, O.
C. H. Dorman, *M. M. & M. C. B*....Alliance, O.
Cleveland, Tuscarawas Valley & Wheeling Ry.
4-8½ g. 158 m. 23 lo. 1,522 cars.
Oscar Townsend, *Gen. Man* ......Cleveland, O.
Wm. Thornburg, *Supt* ....Lorain, O.
Cleve. & Marietta R. R. 4-8½ g. 99 m. 9 lo. 157 cars.
S. C. Baldwin, *Gen. Man* ....Marietta, O.
M. D. Woodford, *Gen. Supt*.........Marietta, O.
R. B. Hoover, *Pur. Agt* ....Marietta, O.
Lewis James, *M. M* ....Toledo, O.
Cleveland & Pittsburg R. R. (*See Penna. Co.*)
Coburg, Peterborough & Marmora Ry.
5-6 g. 47 m. 5 lo. 207 cars.
Jas. R. Barber, *Gen. Supt* ......Cobourg, Ont.
Jas. Clark, *M. M* ....Cobourg, Ont.
John Tinney, *M. C. B* ....Cobourg, Ont.
Columbia & Greenville R. R. (*See Rich. & Dan.*)
Columbus, Hocking Valley & Toledo Ry.
4-9 g. 319 m. 90 lo. 7,257 cars.
M. M. Greene, *Gen. Man* ....Columbus, O.
G. R. Carr, *Gen. Supt* ....Columbus, O.
W. M. Greene, *Pur. Agt* ....Columbus, O.
Ira G. Hutchins, *M. M* ....Columbus, O.
J. M. Rockafield, *M. C. B* ....Columbus, O.
Tol. Div.: M. T. Seymour, *Supt*......Columbus, O.
Hock. V. Div.: M. P. L. Booth, *Supt*.Columbus, O.
Ohio Riv. Div.: C. D. Norris, *Supt*......Logan, O.
Columbus & Maysville Ry. (*See Cin. & East.*)
Columbus & Rome R. R. 3 g. 33 m. 2 lo. 25 cars.
M. E. Gray, *Supt* ....Columbus, Ga.
Columbus & Western Ry. 5 g. 80 m. 2 lo. 19 cars.
E. A. Llewellen, *Gen. Man* ......Columbus, Ga.
R. A. Bridges, *M. M* ....Opelika, Ala.
Concord & Claremont R. R. (*See Northern of N. H.*)
Conn.Riv.and Ver.Val.R.Rs. 4-8½ g. 130 m. 33 lo. 456 c.
J. Mulligan, *Supt.& Pur. Agt*.Springfield, Mass.
W. H. Stearns, *M. M* ....Springfield, Mass.
Robert Hitchcock, *M. C. B*...Springfield, Mass.
Connotton Valley R. R. 3 g. 160 m. 26 lo. 896 cars.
Samuel Briggs, *Gen. Man* ....Canton, O.
B. C. Bosworth, *M. M* ....Canton, O.
Cornwall R. R. 4-8½ g. 9 m. 5 lo. 166 cars.
Frank Donahue, *G. Supt. & M. M*.Lebanon, Pa.
Levi Bleneh, *M. C. B* ....Lebanon, Pa.
Credit Valley Ry. 4-8½ g. 184 m. 22 lo. 535 cars.
James Ross, *Gen. Supt* ....Toronto, Ont.
John Macnab, *Pur. Agt* ....Toronto, Can.
H. G. Taylor, *Mech. Supt* ....Toronto, Can.

Crown Point Iron Co. R. R. 3 g. 13 m.
A. L. Inman, *Gen. Man*.....Plattsburg, N. Y.
J. M. Davies, *Supt. & M. M.*..Crown Point, N. Y.
J. C. Sherman, *M. C. B*.....Crown Point, N. Y.
Cumberland Valley R. R. 4-9 g. 125 m. 21 lo. 430 cars.
J. F. Boyd, *Supt*..........Chambersburg, Pa.
A. S. Hull, *M. M*..........Chambersburg, Pa.
C. Wickey, *F. C. R*..........Chambersburg, Pa.
Cumberland & Penn. R. R. 4-8½ g. 55 m. 28 lo. 625 c.
P. L. Burwell, *Gen Supt & P A.*Cumberland, Md.
N. W. Howson, *Mast. of Mach.*Mt. Savage, Md.
Nathan Binix, *M. C. B*.......Mt. Savage, Md.

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Danbury & Norwalk R. R. 4-8½ g. 33 m. 6 lo. 100 c.
L. W. Sandiforth, *G. Supt. & P. A.*.S. Norwalk, Ct.
N. M. George, *M. M. & C. B*....Danbury, Conn.
Danville, Mocksville & So.-Wn. R. R. 3 g. 28 m.
H. W. Goodrich, *Ch. Eng*.....Leakesville, N. C.
Danville, Olney & O. R. R. R. 4-8½ g. 110 m. 4 lo. 83 c.
Jas. R. Maxwell, *G. Man. & P. A*.....Olney, Ill.
J. M. Graham, *Supt*..........Kansas, Ill.
Louis Parisoe, *M. M. & C. B*.......Kansas, Ill.
Dayton & Union R. R. (*See Ohio Ry.*)
Del., Lackawanna & W. and N. Y., Lack. & W. R. Rs.
4-8½ g. 670 m. 348 lo. 26,187 cars.
Wm. F. Halstead, *Gen. Supt*.....Scranton, Pa.
G. W. B. Cushing, *Pur. Agt*. . New York, N. Y.
Walter Dawson, *Mast. of Mach*...Scranton, Pa.
Robt. McKenna, *M. C. B*.........Scranton, Pa.
Bloomsb'g Div.: C. Graham, *M. M.*.Kingston, Pa.
Utica Div.: A. C. Salisbury, *Supt*....Utica, N. Y.
Thos. Thatcher, *M. M*...........Utica, N. Y.
Morris & Essex Div.; Sussex; P. & D. and C. R. Rs.
A. Reasoner, *Supt*..........Hoboken, N. J.
W. H. Lewis, *M. M*.........Kingsland, N. J.
J. W. Baker, *Mast. Car Rep*.....Dover, N. J.
Oswego & Syracuse Div.:
W. B. Phelps, *Supt*..........Oswego, N. Y.
Jas. Buchanan, *M. M*.......Syracuse, N. Y.
Syracuse, Binghamton & New York R. R.
4-8½ g. 81 m. 20 lo. 598 cars.
W. K. Niver, *Gen. Supt*.......Syracuse, N. Y.
Jas. Buchanan, *M. M*.........Syracuse, N. Y.
Delaware Western R. R. 4-8½ g. 20 m. 4 lo. 35 cars.
David Connell, *Supt*..........Wilmington, Del.
Delaware & Chesapeake R. R. 4-8½ g. 54 m. 3 lo. 16 c.
O. S. Sanford, *Supt*..........Oxford, Md.
Joseph A. Baynard, *M. M*..........Oxford, Md.
Chas. E. Mason, *M. C. B*..........Oxford, Md.
Delaware & Hudson Canal Co.
4-3 and 4-8½ g. 596 m. 151 lo. 9,248 cars.
C. F. Young, *Gen. Man*..........Honesdale, Pa.
C. F. Young, *Pur. Agt*..........Albany, N. Y.
R. C. Blackall, *Supt. of Mach*.....Albany N. Y.
Susq. Div.: C. D. Hammond, *Supt.* Albany, N. Y.
C. A. Jones, *M. M*..........Oneonta, N. Y.
J. R. Skinner, *M. C. B*..........Oneonta, N. Y.
Sar. & Ch. Divs.: T. Voorhees, *Supt*...Troy, N. Y.
J. L. Corey, *M. M*..........Green Island, N. Y.
Chr. Körner, *M. C. B*.....Green Island, N. Y.
Pa. Div.: R. Manville, *Supt & Pur Agt*, and
S. H. Dotterer, *M. M*.......Carbondale, Pa.
T. Orchard, *M. C. B*..........Carbondale, Pa.
Denver & New Orleans. 4-8½ g. 140 m. 11 lo. 400 c.
C. W. Fisher, *Gen. Man*..........Denver, Col.
Chas. Wheeler, *Pur. Agt*..........Denver, Col.
S. P. Weller, *M. M. & M. C. B*.....Denver, Col.
Denver & Rio Grande Ry. 3 g. 1,062 m. 170 lo. 4,617 c.
D. C. Dodge, *Gen. Man*..........Denver, Col.
Henry Wood, *Gen. Supt*. Salt Lake City, Utah.
Geo. W. Ristin, *Asst. Gen. Man*...Denver, Col.
A. B. Garner, *Pur. Agt*..........Denver, Col.
N. W. Sample, *M. M*..........Denver, Col.
M. C. B..........Burnham, Col.
1st Div.: W. H. Bancroft, *Supt*....S. Pueblo, Col.
2d Div.: R. M. Ridgway, *Supt*.....Alamosa, Col.
3d Div.: Cole Lydon, *Supt*..........Leadville, Col.
4th Div.: J. A. Myers, *Supt*..........Salida, Col.
Des Moines & Ft. Dodge. 4-8½ g. 143 m. 13 lo. 232 c.
C. N. Gilmore, *Supt*..........Des Moines, Ia.
John McGrayel, *M. M*......Grand Junction, Ia.
E. A. Avery, *M. C. B*.......Grand Junction, Ia.
Det., Gr. H. & Mil. Ry. 4-8½ g. 189 m. 36 lo. 478 c.
G. R. Nash, *Gen. Man*..........Detroit, Mich.
John S. Lorimer, *Storekeeper*....Detroit, Mich.
W. J. Morgan, *Supt*..........Detroit, Mich.
F. Parker, *Mech. Supt*..........Detroit, Mich.
Det., Lansing & No'n R. R. 4-8½ g. 222 m. 84 lo. 1027 c.
John B. Mulliken, *Gen. Man*......Detroit, Mich.
Allan Bourn, *Pur. Agt*..........Detroit, Mich.
Thos. M. Fish, *Gen. Supt*..........Ionia, Mich.
G. C. Watrous, *M. M. & C. B*.......Ionia, Mich.
Det., Mack. & Marq. R. R. 4-8½ g. 151 m. 16 lo. 1112 c.
D. McCool, *Gen. Supt*..........Marquette, Mich.
E. W. Allen, *Pur. Agt*..........Marquette, Mich.
John Wilson, *Mech. Supt*.....Marquette, Mich.
Dorchester & Delaware R. R. 4-8½ g. 33 m.
Thos. E. Wright, *Supt*..........Cambridge, Md.
Dubuque & Dakota R. R. 4-8½ g. 64 m. 2 lo. 54 cars.
A. C. Goodrich, *Supt*..........Waverly, Ia.
W. S. Couch, *Pur. Agt*..........Dubuque, Ia.
Duck River Valley R. R. 3 g. 34 m.
Geo. Childress, *Supt*..........Columbia, Tenn.
Dunkirk, Allegheny Valley & Pittsburgh R. R.
4-8½ g. 91 m. 14 lo. 102 cars.
D. Thayer, *Gen. Supt*..........Dunkirk, N. Y.
R. C. Moore, *Pur. Agt*.......New York, N. Y.
J. C. Haggett *M. M. & C. B*.....Dunkirk, N. Y.

E

East Broad Top R. R. 3 g. 30 m. 6 lo. 191 cars.
A. W. Sims, *Supt*..........Orbisonia, Pa.
A. B. Greenwood, *M. M*..........Orbisonia, Pa.
East Tennessee, Virginia & Georgia R. R.
5 g. 1,185 m. 133 lo. 1,597 cars.
Henry Fink, *V. P. & Gen. Man.*Lynchburg, Va.
J. F. O'Brien, *Gen. Supt*.......Knoxville, Tenn.
East Tenn. Div. and No. Car. and Ohio Branches:
F. K. Huger, *Supt*..........Knoxville, Tenn.
B. J. Sitton, *M. M*..........Knoxville, Tenn.
Jos. Armbruster, *M. C. B*....Knoxville, Tenn.
Alabama Div.: J. M. Bridges, *Supt*...Selma, Ala.
Simon Gay, *M. M*..........Selma, Ala.
W. W. Pierce, *M. C. B*..........Selma, Ala.
Memphis & Charleston R. R. (Div.):
R. B. Pegram, Jr., *Supt*.....Memphis, Tenn.
H. N. Burford, *M. M*.......Memphis, Tenn.
Macon & Brunswick Div.:
J. F. Mallory, *Supt*..........Macon, Ga.
C. H. Beale, *M. M*..........Macon, Ga.
Ga. Div.: W. V. McCracken, *Supt*.....Atlanta, Ga.
M. J. Rogers, *M. M*..........Atlanta, Ga.
East & West R. R. of Alabama.
John Postell, *Manager*.......Cross Plain, Ala.
Eastern R. R. 4-8½ g. 283 m. 99 lo. 2,268 cars.
Payson Tucker, *Gen. Man*.......Boston, Mass.
D. W. Sanborn, *Mast. of Trans*..Boston, Mass.
G. F. Hurd, *Pur. Agt*..........Boston, Mass.
Amos Pillsbury, *S. M. P. & M*...E. Boston, Mass.
J. D. Billings, *G. For. Car Dept*...Salem, Mass.
Con'y Div.: J. W. Sanborn, *Supt*., Wolfboro J., N. H.
Eastern Kentucky R. R. 4-8½ g. 34 m. 5 lo. 123 c.
H. W. Bates, *Man. & Pur. Agt*...Riverton, Ky.
D. S. Weaver, *M. M*..........Riverton, Ky.
Eastern Shore R. R. 4-8½ g. 38 m. 2 lo.
W. Thompson, *Supt*.......Princess Anne, Md.
F. Strattner, *M. M*.......Princess Anne, Md.
Elberton Air-Line R. R. (*See Rich. & Dan. N. G. Brs.*)
Elizabeth City & Norfolk R. R. 4-8½ g. 70 m. 5 lo. 96 c.
M. K. King, *Gen. Man. & Pur. Agt*.Norfolk, Va.
J. S. Whitworth, *M. M. & C. B*....Norfolk, Va.
Erie & Pittsburgh R. R. (*See Penna. Co.*)
Eureka & Palisade R. R. 3 g. 97 m. 7 lo. 124 cars.
B. Gilman, *Gen. Supt & Pur. Agt*..Eureka, Nev.
E. C. Mills, *M. M*..........Palisade, Nev.
A. S. Longley, *M. C. B*..........Palisade, Nev.
Europ. & No. Amer. Ry. 4-8½ g. 114 m. 15 lo. 557 c.
F. W. Cram, *Supt. & Pur. Agt*....Bangor, Me.
A. O. Bailey, *M. M. & C. B*.Mattawamkeag, Me.
Evansville, Paducah & Cairo Line. 200 miles.
G. J. Grammer, *Supt*..........Evansville, Ind.
Evansville, Rockport & E'n Ry. 4-9 g. 71 m. 5 lo. 98 c.
H. L. Shepard, *Supt*..........Evansville, Ind.
Evansv. & Terre Haute. 4-8½ g. 145 m. 26 lo. 900 c.
C. J. Hepburn, *Gen. Supt*.....Evansville, Ind.
John Torrance, *Gen. For*.......Evansville, Ind.

F

Fitchburg R. R. 4-8½ g. 189 m. 100 lo. 3,315 cars.
John Adams, *Gen. Supt*..........Boston, Mass.
E. K. Turner, *Asst. Supt*....Fitchburg, Mass.
F. S. Pratt, *Pur. Agt*..........Boston, Mass.
G. A. Coolidge, *Supt. M. P*........Boston, Mass.
W. A. Foster, *Asst. Supt. M. P.*..Fitchburg, Mass.
J. W. Marden, *M. C. B*.....Charlestown, Mass.
Flint & Pere Marq. 4-8½ g. 345 m. 68 lo. 1,854 cars.
H. C. Potter, *Gen. Man*......E. Saginaw, Mich.
D. Edwards, *Asst. Gen. Man*..E. Saginaw, Mich.
G. G. Cook, *Pur. Agt*..........E. Saginaw, Mich.
Sanford Keeler, *Gen. Supt*..E. Saginaw, Mich.
W. F. Potter, *Supt.* (E. Div.)..E. Saginaw, Mich.
M. V. Meredith, *Supt.* (W. Div.)E. Saginaw, Mich.
T. J. Hatswell, *M. M*..........E. Saginaw, Mich.
R. McPherson, *M. C. B*..........E. Saginaw, Mich.
Florida Central & Western R. R.
5 g. 234 m. 16 lo. 160 cars.
Wm. M. Davidson, *Gen. Man.* Jacksonville, Fla.
Jas. S. McElroy, *Supt*..........Tallahassee, Fla.
Florida Southern Ry. 3 g. 91 m. 6 lo. 96 cars.
H. S. Ming, *Gen. Supt*..........Palatka, Fla.
M. R. Miller, *M. M. & C. B*.......Palatka, Fla.
Florida Transit R. R. 5 g. 224 m.
D. E. Maxwell, *Gen. Supt*.....Fernandina, Fla.
John Hedges, *Pur. Agt*.........Fernandina, Fla.
R. V. Dahoney, *M. M*..........Fernandina, Fla.
G. Hernandez, *M. C. B*..........Fernandina, Fla.
Fonda, Johnst'n & Gloversv. 4-8½ g. 26 m. 5 lo. 18 c.
Lawton Caten, *Supt*..........Gloversville, N. Y.
Fond du Lac, Amboy & Peoria. 3 g. 30 m. 2 lo. 35 c.
Alonzo Kinyon, *Supt. & P. A.* Fond du Lac, Wis.
Fort Dodge & Fort Ridley R. R. 4-8½ g.
G. R. Pearson, *Supt*..........Fort Dodge, Ia.
Ft. Madison & No.-West'n Ry. 3 g. 41 m. 4 lo. 120 c.
S. B. Kenrick, *Supt. & Pur. Agt.*Ft. Madison, Ia.
I. L. Lamb, *M. M. & C. B*.....Ft. Madison, Ia.
Ft. Wayne, Cin. & Louisv. 4-8½ g. 108 m. 9 lo. 249 c.
White Water R. R. 4-8½ g. 62 m. 5 lo. 170 cars.
W. W. Worthington, *Gen. Supt*...Ft. Wayne, Ind.
T. H. Haberkorn, *M. M*..........Ft. Wayne, Ind.
Wm. Knight, *M. C. B*..........Ft. Wayne, Ind.
C. W. Hollister *M. M. & C. B*....Jackson, Mich.
Fulton County N. G. Ry. 3 g. 61 m. 3 lo. 106 cars.
A. C. Atherton, *Gen. Supt. & P. Agt*.Lewiston, Ill.

G

Galveston, Harrisburg & San Antonio Ry.
4-8½ g. 492 m. 47 lo. 1870 cars.
A. N. Towne, *Gen. Man*..........Houston, Tex.
E. G. Thompson, *Supt*..........Houston, Tex.
El Paso Div.: Jas. Campbell, *Supt*..El Paso, Tex.
J. L. Bonner, *M. M*..........El Paso, Tex.
San Anto. Div.: W. G. Van Vleck, *Supt*..
San Antono, Tex.
J. J. Ryan, *M. M*..........San Antonio, Tex.
Houston Div.: H. Flanders, *Supt*..Harrisburg, Tex.
D. T. Davis, *M. M*..........Harrisburg, Tex.
Louisiana Div.: W. Irwin, *Supt*.....Houston, Tex.
D. C. Smith, *M. M*..........Houston, Tex.
Galveston, Houston & Henderson R. R.
4-8½ g. 50 m. 17 lo. 212 cars.
W. H. Harding, *G. Man. & P. Agt*.Galveston, Tex.
Allen McCoy, *Supt*..........Galveston, Tex.
J. G. Conlon, *M. M*..........Galveston, Tex.
Geneva, Ithaca & Sayre R. R. (*See Lehigh Val.*)
Georgia R. R. 5 g. 307 m. 42 lo. 938 cars.
John W. Green, *Gen. Man*..........Augusta, Ga.
John S. Cook, *M. M*..........Augusta, Ga.
T. M. Preval, *M. C. B*..........Augusta, Ga.
Georgia Pacific Ry. (Miss. Div.) 3 g. 43 m. 2 lo. 44 c.
G. J. Foreacre, *Supt*..........Atlanta, Ga.
W. M. Sutton, *Pur. Agt*..........Greenville, Miss.
Benj. Davis, *M. M*..........Greenville, Miss.
J. B. Shelton, *M. C. B*.........Greenville, Miss.
Grand Haven R. R. (*See Chic. & W. Mich.*)
Grand Junction R'y. (*See Midland of Can.*)
G'd Rap., Newaygo & L. S. R. R. (*See Chic. & W. M.*)
Grand Rapids & Indiana. 4-8½ g. 456 m. 52 lo. 1,566 c.
W. O. Hughart, *Gen. Man.*Grand Rapids, Mich.
W. R. Shelby, *Pur. Agt*....Grand Rapids, Mich.
S. D. Bradley, *M. M*......Grand Rapids, Mich.
No'n Div.: J. M. Metheany, *Supt.*G'nd Rap., Mich.
So'n Div.: P. S. O'Rourke, *Supt.*Fort Wayne, Ind.
Grand Tower & Carbondale. 4-8½ g. 25 m. 6 lo. 357 c.
T. M. Williamson, *Supt. & P. A.* Gr. Tower, Ill.
Hugh Smith, *M. M. & C. B*....Grand Tower, Ill.
Grand Trunk Ry. 4-8½ g. 1,267 m. 434 lo. 9,403 c.
Joseph Hickson, *Gen. Man*.....Montreal, Can.
Wm. Wainright, *Asst. Man*.....Montreal, Can.
Gr. Tr. Divs.: W. J. Spicer, *Supt.*Montreal, Can.
Jno. Taylor, *Gen. Storekeeper*.Montreal, Can.
Herbert Wallis, *Mech. Supt*...Montreal, Can.
Wm. McWood, *Supt. Car Dept.*Montreal, Can.
F. R. F. Brown, *Man. Lo. W'ks*.Montreal, Can.
J. Haskoni, *Div. M. S*.......Richmond, P. Q.
F. L. Wanklyn, *Div. M. S*...Brockville, Ont.
J. Davis Barnett, *Div. M. S*....Stratford, Ont.
Chi. & Gr. Trunk Ry. 4-8½ g. 330 m. 56 lo. 1,191 c.
S. R. Callaway, *Gen. Man*.......Chicago, Ill.
W. H. Pettibone, *Supt*...Battle Creek, Mich.
A. Judd, *Pur. Agt*.........Fort Gratiot, Mich.
H. Roberts, *Asst. M. S*.....Port Huron, Mich.
Great West'n Div.: 4-8½ g. 823 m. 216 lo. 5,039 c.
Chas. Stiff, *Supt*..........Hamilton, Ont.
E. R. Baines, *Store Kpr*.......London, Ont.
C. K. Domville, *Mech. Supt*...Hamilton, Ont.
C. F. Hanson, *Lo. For*..........London, Ont.
J. D. McIlwain, *Supt. Car Dept*..London, Ont.
Green Bay, Winona & St. Paul R. R.
4-8½ g. 250 m. 19 lo. 599 cars.
Timothy Case, *Gen. Man. & P. A.*Green Bay, Wis.
A. Fenwick, *M. M*..........Ft. Howard, Wis.
Gulf, Col. & Santa Fé Ry. 4-8½ g. 536 m. 43 lo. 1,460 c.
John Sealy, *Gen. Man*.........Galveston, Texas.
F. P. Killeen, *Asst. Gen. Man.*Galveston, Texas.
Jno. W. Thorne, *Pur. Agt*....Galveston, Texas.
G. B. Nichols, *M. M*..........Galveston, Texas.
W. H. Martin, *M. C. B*........Galveston, Texas.
Gulf, W'n Texas & Pac. Ry. 4-8½ g. 68 m. 6 lo. 70 c.
M. D. Monserrate, *Pr. & Supt*....Cuero, Texas.
James Mooney, *M. M*..........Cuero, Texas.

H

Halifax & Cape Breton Ry. 4-8½ g. 79 m. 9 lo. 268 c.
H. Abbott, *Manager*..........New Glasgow, N. S.
Hannibal & St. Jo. R. R. 4-8½ g. 292 m. 76 lo. 1,860 c.
John B. Carson, *Gen. Man*......Hannibal, Mo.
W. R. Woodard, *Supt*..........Hannibal, Mo.
T. L. Dunn, *Ch. Eng. & Pur. Agt*..Hannibal, Mo.
Jas. Long, *Supt. M. P. & Car Dep.*Hannibal, Mo.
Hanover Junction, Hanover & Gettysburg R. R.
4-8½ g. 74 m. 9 lo. 106 cars.
H. D. Scott, *Gen. Supt*..........Hanover, Pa.
John J. Bingley *M. M*..........Hanover, Pa.
Henry Britcher, *M. C. B*..........Hanover, Pa.
Harrisburg & Potomac R. R. 4-8½ g. 35 m. 3 lo. 34 c.
R. H. Middleton, *Supt*.......Boiling Springs, Pa.
Hartford & Conn. Val. R. R. 4-8½ g. 45 m. 9 lo. 196 c.
Samuel Babcock, *Pr. & Gen. Man.*Hartford, Ct.
Levi Woodhouse, *Asst. Supt*....Hartford, Ct.
S. E. Brewer, *M. M. & C. B*.....Hartford, Conn.
Hartford & Conn. W'n R. R. 4-8½ g. 110 m. 16 lo. 495 c.
John F. Jones, *Supt*..........Hartford, Ct.
J. C. Barton, *M. M*..........Hartford, Ct.
Housatonic R. R. 4-8½ g. 126 m. 22 lo. 495 cars.
W. H. Yeomans, *Supt*..........Bridgeport, Ct.
D. S. Draper, *Pur. Agt*..........Bridgeport, Ct.
N. Slingland, *M. M*..........Falls Village, Ct.
J. J. Ferris, *M. C. B*..........Falls Village, Ct.
Houston Belt Ry. 4-8½ and 3 gauge. 50 miles.
S. L. Werden, *V. P. & Gen. Man.* Houston, Tex.
Houston, East & West Tex. Ry. 3 g. 120 m. 10 lo. 478 c.
Paul Bremond, *Pr. & Pur. Agt*..Houston, Tex.
E. L. Bremond, *Gen. Man*.......Houston, Tex.
B. O. Diffey, *M. M*..........Houston, Tex.
C. F. Schelewa, *M. C. B*.........Houston, Texas.
Houston & Tex. Cen. Ry. 4-8½ g. 750 m. 78 lo. 2,526 c.
G. Jordan, *V. Pr. & Gen. Man*....Houston, Tex.
A. H. Swanson, *Gen. Supt*.......Houston, Tex.
E. S. Larchar, *Pur. Agt*.......New York, N. Y.
L. C. Noble, *Gen. M. M*..........Houston, Tex.
James McGee, *M. C. B*..........Houston, Tex.
So. & Wn. Divs.: M. G. Howe, *Supt.*Houston, Tex.
No. & Mi. Divs.: G. A. Quinlan, *Supt.*Dallas, Tex.
C. H. Burns, *Asst. M. M*.......Corsicana, Tex.
No.-Wn. Div.: Donald Allen, *Supt*....Waco, Tex.
Humeston & Shenandoah R. R.
4-8½ g. 85 m. 5 lo. 72 cars.
F. O. Wyatt, *Gen. Man*..........Clarinda, Ia.
M. B. Snyder, *M. M*..........Clarinda, Ia.
Huntingdon & Br. Top Mt. 4-8½ g. 62 m. 18 lo. 69 c.
Geo. F. Gage, *Gen. Supt*.......Huntingdon, Pa.
Samuel B. Knight, *Pur. Agt*..Philadelphia, Pa.
William Barkla, *M. M*..........Saxton, Pa.

I

Illinois Central R. R. 4-8½ g. 1,554 m. 224 lo. 6,172 c.
Jas. C. Clark, *Gen. Man*..........Chicago, Ill.
E. T. Jeffery, *Gen. Supt*..........Chicago, Ill.
C. A. Beck, *Asst. Gen. Supt*.......Chicago, Ill.
O. Ott, *Pur. Agt*..........Chicago, Ill.
Henry Schlacks, *S. of Mach*.......Chicago, Ill.
W. B. Snow, *M. M. Car Works*.....Chicago, Ill.
Chic. Div.: T. J. Hudson, *Supt*.......Cairo, Ill.
Wm. Renshaw, *Act. M. M*.......Chicago, Ill.
Mid. Div.: H. L. Frisbie, *Supt*.........Pontiac, Ill.
Spring. Div.: W. Wilkinson, *Supt.*Springfield, Ill.
W. B. McKenna, *M. M*..........Clinton, Ill.
No'n Div.: J. C. Jacobs, *Supt*..........Amboy, Ill.
J. B. Edams, *M. M*..........Amboy, Ill.
So. Div.: David Oxley, *M. M*.......Centralia, Ill.
Ia. Div.: D. W. Parker, *Supt*.........Dubuque, Ia.
Thos. W. Place, *M. M*..........Waterloo, Ia.
Illinois Midland Ry. 4-8½ g. 176 m. 12 lo. 611 cars.
D. H. Conklin, *Rec. & Gen. Man*.......Decatur, Ill.
O. E. Grady, *Train Mast*..........Decatur, Ill.
Frank Young, *For. Shops*..........Paris, Ill.
Illinois & St. Louis R. R. 4-8½ g. 18 m. 5 lo. 402 c.
Tho. McKissock, *Gen. Man*.......Belleville, Ill.
C. H. Sharman, *Gen. Supt. & P. A.*Belleville, Ill.
W. O. Hewitt, *M. M*..........Belleville, Ill.
Charles Rotha, *M. C. B*.......E. St. Louis, Ill.
Indiana, Bloomington & Western Ry.
4-8¾ g. 712 m. 64 lo. 3,650 cars.
C. E. Henderson, *Gen. Man*. Indianapolis, Ind.
J. H. Wilson, *Gen. Supt*.....Indianapolis, Ind.
H. C. Norton, *Pur. Agt*......Indianapolis, Ind.
B. Warren, *Gen. M. M*........Indianapolis, Ind.
Peoria Div.: I. H. Wilson, *Supt*..Indianapolis, Ind.
E. Hiserodt, *M. M*..........Urbana, Ill.
St. Louis Div.: I. H. Wilson, *Supt*.....Indnpls, Ind.
John King, *M. M*..........Indianapolis, Ind.
Ohio Div.: D. R. Ennis, *Asst. Supt.*Springfield, Ill.
Jos. S. Porter, *M. M*..........Sandusky, O.
Indiana, Illinois & Iowa R. R. 63 miles.
F. M. Drake, *Gen. Man*..........Kankakee, Ill.
J. P. Shonts, *Supt*..........Kankakee, Ill.
Indianapolis & Vincennes R. R. (*See Penna. Co.*)
Intercolonial Ry. 4-8½ g. 846 m. 135 lo. 4,500 cars.
David Pottinger, *Chief Supt*.....Moncton, N. B.
T. V. Cooke, *Gen. Storekeeper*..Moncton, N. B.
H. A. Whitney, *Mech Supt*.......Moncton, N. B.
Ewd. Shaffer, *M. C. B*..........Moncton, N. B.
Monc. Div.: J. E. Price, *Supt*..Cambellton, N. B.
Hal. & St. J. Div.: Jas. Coleman, *Supt*..Truro, N. B.
Levis Div.: A. McDonald, *Supt*. Rivière du Loup, Q.
International Ry. 4-8½ g. 69 m. 2 lo. 12 cars.
D. E. McFee, *Supt*..........Sherbrooke, Que.
International & Gt. N'n R. R. (*See Mo. Pac. Ry.*)
Iron Mountain & Helena R. R. 4-8½ g. 27 m. 2 lo. 11 c.
Wm. Bailey, *Pres. & Gen. Man*....Helena, Ark.
D. Stillinger, *Supt*..........Helena, Ark.
F. M. Green, *Pur. Agt*..........Helena, Ark.
Wm. Summers, *M. C. B*..........Helena, Ark.
Ithaca, Auburn & Western Ry. 4-8½ g. 38 m.
Fred T. Peet, *Supt*..........Auburn, N. Y.
Ira Dunning, *M. M*..........Auburn, N. Y.

J

Jacksonville So.-E'n R. R. 4-8½ g. 54 m. 5 lo. 68 c.
E. S. Greenleaf, *Supt*..........Jacksonville, Ill.
Ira Petrie, *M. M*..........Jacksonville, Ill.
Jacksonv., Pensacola & Mob. (*See Fla. Cent. & W.*)
Jamesville & Washington. 4-8½ g. 22 m. 3 lo. 24 c.
A. Fisher, *Manager*..........Dymond City, N. C.
J. E. Lordley, *M. M. & C. B*..Dymond City, N. C.
Jeffersonv'l, Madison & Indpls. R. R. (*See Pa. Co.*)
Jersey City & Albany R. R. 4-8½ g. 38 m.
J. W. McCulloh, *Manager*....Jersey City, N. J.
Junction & Breakwater; Breakwater & Frankford;
and Worcester R. Rs. 4-8½ g. 101 m. 6 l. 133 c.
J. & B. Rd.: Thos. Groome, *Supt*....Lewes, Del.
Geo. Messick, *M. M*..........Lewes, Del.
W. H. Virden, *M. C. B*..........Lewes, Del.
B. & F. and W. Rds.: J. L. Mapes, *St.* Berlin, Md.

K

Kansas Central R. R. (*See Union Pacific.*)
Kansas Cy, Lawrence & So. Kan. 4-8½ g. 396 m. 787 c.
C. C. Wheeler, *Gen. Man*..........Topeka, Kan.
J. L. Barnes, *Supt*..........Lawrence, Kan.
F. M. Smith, *Pur. Agt*..........Topeka, Kan.
T. D. Volk, *M. M*..........Ottawa, Kan.
Kansas City, Fort Scott & Gulf R. R. 4-8½ g.
Geo. H. Nettleton, *Gen. Man*..Kansas City, Mo.
L. W. Towne, *Gen. Supt*.....Kansas City, Mo.
H. P. Jacques, *Pur. Agt*.....Kansas City, Mo.
J. S. McCrum, *M. M*.......Kansas City, Mo.
A. N. Montier, *M. C. B*.......Kansas City, Mo.
Kansas City, St. Joseph & Council Bluffs; and St. Jo. &
Des Moines R. Rs. 4-8½ g. 368m. 38 lo. 1,148 cars.
J. F. Barnard, *Gen. Supt. & P. A.*St. Joseph, Mo.
F. A. Chase, *M. M*..........St. Joseph, Mo.
Thos. Aylesbury, *G. For. Car. Dep.*St. Joseph, Mo.
Kendall & Eldred R. R. (*See Olean, B. & W.*)
Kent Co.: Sm. & Del. Bay Rds. 4-8½ g. 50 m. 2 lo. 13 c.
Fred Gerker, *Gen. Man*.......Chestertown, Md.
Kentucky Central R. R. 4-9 g. 150 m. 20 lo. 598 cars.
G. W. Bender, *Supt*..........Covington, Ky.
A. H. Watts, *F. of Mach*.......Covington, Ky.
J. L. Hackathorn, *M. C. B*.....Covington, Ky.
Kentucky & South Atlantic Ry. 3 g. 23 m. 3 lo. 52 c.
Geo. B. Harper, *Supt. & P. A.*.Mt. Sterling, Ky.
S. P. Hatfield, *M. M*..........Mt. Sterling, Ky.
Kinzua R. R. (*See Olean, B. & W.*)
Kingston & Pembroke Ry. 4-8½ g. 65 m. 4 lo. 76 c.
B. W. Folger, *Supt*..........Kingston, Ont.
C. Gildersleeve, *Pur. Agt*........Kingston, Ont.
Geo. Becker, *M. M*..........Kingston, Ont.
Knox & Lincoln R. R. 4-8½ g. 49 m. 5 lo. 92 cars.
C. A. Coombs, *Supt*..........Bath, Me.
Wm. A. Field, *M. M*..........Bath, Me.
C. L. Turner, *M. C. B*..........Bath, Me.
Knoxville & Augusta R. R. 4-6 g. 16 m. 2 lo. 34 cars.
J. M. Hood, *Supt*..........Marysville, Tenn.
M. R. Hood, *Pur. Agt*.......Marysville, Tenn.

L

Lake Erie & Western Ry. 4-8½ g. 388 m. 43 lo. 1,526 c.
E. H. Waldron, *Gen. Man*......La Fayette, Ind.
E. H. Andress, *Pur. Agt*.......La Fayette Ind.
H. L. Cooper, *Supt. of Equipment*....Lima, O.
D. S. Hill, *Gen. Supt*..........Sandusky, O.
Lake Shore & Michigan So'n Ry.
4-8½ g. 1,243 m. 546 lo. 17,115 cars.
John Newell, *Gen. Man*..........Cleveland, O.
P. P. Wright, *Gen. Supt*..........Cleveland, O.
A. C. Armstrong, *Pur. Agt*.......Cleveland, O.
James Sedgley, *Gen. M. M*.......Cleveland, O.
John Kirby, *Gen. M. C. B*.......Cleveland, O.
Buffalo Div.: C. B. Couch, *Supt*....Cleveland, O.
J. S. Graham, *M. M*..........Buffalo, N. Y.
A. C. Robson, *M. C. B*..........Buffalo, N. Y.
Frank. Div.: G. H. McIntire, *Supt*. Stoneboro, Pa.
Erie Div.: C. B. Couch, *Supt*.......Cleveland, O.
L. O. Gassett, *M. M*..........Cleveland, O.
J. Withycombe, *M. C. B*.......Cleveland, O.
Toledo Div.: Thos. Flesher, Jr., *Supt.*Cleveland, O.
J. M. Sanborn, *M. M*..........Norwalk, O.
W. O. Smith, *M. C. B*..........Norwalk, O.
Mich. Div.: J. E. Curtis, *Supt*..........Toledo, O.
Det. Div.: T. J. Charlesworth, *Supt*. Detroit, Mich.
Lansing Div.: W. H. Caniff, *Supt*..Lansing, Mich.
Western Div.: *Supt*...Chicago, Ill.
G. W. Stevens, *M. M.* (M. S. Divs.) Elkhart, Ind.
Frank O. Bray, *M. C. B*..........Adrian, Mich.
Ft. Wayne Br: W. H. Caniff, *Supt*. Jackson, Mich.
Lebanon Springs R. R. 4-8½ g.
W. C. Alstyne, *Manager*..........Albany, N. Y.
J. K. Hotaling, *Pur. Agt*..........Albany, N. Y.
Geo. Tefft, *M. M*..........Chatham, N. Y.
Lehigh Valley R. R. 4-8½ g. 545 m. 321 lo. 33,817 c.
H. S. Goodwin, *Gen. Supt*.......Bethlehem, Pa.
L. Chamberlain, *Pur. Agt*....Philadelphia, Pa.
John S. Lentz, *M. C. B*.......Packerton, Pa.
N. J. Div.: Jas. Donnelly, *Supt.*Perth Amboy, N. J.
John I. Kinsey, *M. M*..........So. Easton, Pa.
Coal Rds.: J. I. Blakeslee, *Supt.* Mauch Chunk, Pa.
P. Hofecker, *M. M*..........Weatherly, Pa.
John Campbell, *M. M*..........Delano, Pa.
B. M. Div.: A. G. Brodhead, *S*. Mauch Chunk, Pa.
D. Clark, *M. M*..........Hazleton, Pa.
Wy. Div.: A. Mitchell, *S. & M. M.* Wilkesbarre, Pa.
Pa. & N. Y.; and Geneva, Ithaca & Sayre R. Rs.
Wm. Stevenson, *Supt*..........Sayre, Pa.
J. N. Weaver, *M. M*..........Waverley, Pa.
Lehigh & Hudson. 4-8½ g. 63 m. 8 lo. 350 cars.
Grinnel Burt, *Gen. Man*..........Warwick, N. Y.
John Sayre, *Pur. Agt*..........Warwick, N. Y.
S. Mills, *M. M*..........Warwick, N. Y.
Ligonier Valley R. R. 4-9 g. 11 m. 2 lo. 22 cars.
Thos. A. Mellon, *Gen. Manager*... Pittsburg, Pa.
Geo. Senft, *Supt. & P. Agt*..........Latrobe, Pa.
Little Rock, Miss. River & Texas Ry.
4-8½ g. 160 m. 12 lo. 260 cars.
J. A. Woodson, *G. S. & P. A.* Little Rock, Ark.
F. Hufsmith, *M. M. & C. B*...Arkansas City, Ark.
Little Rock & Fort Smith. 4-8½ g. 168 m. 12 lo. 353 c.
T. Hartman, *Gen. Supt*.......Little Rock, Ark.
James Eblin, *M. M*..........Argenta, Ark.
James Malone, *M. C. B*..........Argenta, Ark.
Long Island R. R. 4-8½ g. 325 m. 79 lo. 740 cars.
I. D. Barton, *Supt*.......Long Island City, N. Y.
Benj. Norton, *Pur. Agt*..Long Island City, N. Y.
C. A. Thompson, *M. M. & C. B*..........do.
Louis., Evans. & St. L. Ry. 4-8½ g. 254 m. 24 lo. 1,032 c.
Webster Snyder, *Gen. Man*.......Louisville, Ky.
W. H. Field, *Pur. Agt*..........Louisville, Ky.
F. M. Mast, *M. M*..........Evansville, Ind.
Louisville, New Albany & Chicago Ry.
4-8½ g. 470 miles 56 lo. 3,700 cars.
John MacLeod, *Gen. Supt*.......Louisville, Ky.
G. C. Breed, *Pur. Agt*..........Louisville, Ky.
Josiah Bettis, *M. M. & C. B*...New Albany, Ind.
Louisville & Nashville R. R.
5 g. 2,090 m. 367 lo. 11,353 cars.
Milton H. Smith, *Gen. Man*.......Louisville, Ky.
P. P. Huston, *Pur. Agt*..........Louisville, Ky.
D. W. C. Rowland, *Gen. Supt. Trans.* Louisville, Ky.
Reuben Wells, *Supt. Mach*.......Louisville, Ky.
Louisv. Divs.; and Louisv., Cin. & Lex. Ry. (Cin. Div.)
J. G. Metcalf, *Supt. Trans*......Louisville, Ky.
P. Leeds, *M. M.* (Lo. Div.).......Louisville, Ky.
J. W. Luttrell, *M. M.* (Cin. Div.) Louisville, Ky.
W. P. Pike, *M. M.* (2d & C. Div.). Bowling Green, Ky.
Nash. & D. Div.: J. Geddes, *Supt.* Nashville, Tenn.
W. H. Thomas, *M. M*..........Nashville, Tenn.
S. & N. A. Div.: E. Marsh, *Supt.* Birmingham, Ala.
C. W. White, *M. M*..........Birmingham, Ala.
Mob. & M.; N. Div. Pens. & Sel.; Sl. & Mont. R. Rs.:
M. S. Belknap, *Supt*..........Montgomery, Ala.
J. N. Hall, *M. M.* (Mont. Shops) Montgomery, Ala.
N. O. Div.: J. T. Harrihan, *Supt.* New Orleans, La.
Wm. Adair, *M. M*..........Mobile, Ala.
Memp. Div.: W. Colcamp, *Supt.* Memphis, Tenn.
J. V. Slusser, *M. M*..........Memphis, Tenn.
St. L. Div.: J. Montgomery, *Supt.* Evansville, Ind.
Thos. Walsh, *M. M*..........Mt. Vernon, Ill.
Pensacola and So. Div. Pens. & Selma Rds.:
E. O. Saltmarsh, *Supt*..........Pensacola, Fla.
R. B. Small, *M. M*..........Pensacola, Fla.
Louisville & Wadley R. R. 5 g. 10 m.
J. H. Wilkins, *Pr. & Supt*.......Louisville, Ga.

M

Maine Central R. R. 4-8½ g. 470 m. 58 lo. 1,335 c.
Gen. Supt..........Portland, Me.
Ira K. Russell, *M. M*..........Waterville, Me.
C. H. Kenison, *M. C. B*..........Augusta, Me.
Manchester & Keene R. R. (*See B. L. & C.*)
B. F. George, *Asst. Supt*..........Keene, N. H.
Manhattan Ry. 4-8½ g. 32 m. 203 lo. 596 pass. c.
Frank K. Hain, *Gen. Man*.....New York, N. Y.
C. L. Green, *Supt*..........New York, N. Y.
T. W. Peeples, *M. M*..........New York, N. Y.
H. A. Webster, *M. C. B*..........New York, N. Y.
Marietta & Cin. R. R. 4-8½ g. 312 m. 65 lo. 1,422 c.
Jas. H. Stewart, *Gen. Man*.......Cincinnati, O.
Edw. Evans, *M. M*..........Chillicothe, O.
Marietta & North Georgia R. R. 3 g. 24 m. 1 lo. 5 c.
J. B. Glover, *Supt. & P. Agt*.......Marietta, Ga.
E. A. Withers, *M. M*..........Marietta, Ga.
Marquette, Houghton & Ontonagon R. R.
4-8½ g. 87 m. 30 lo. 2,074 cars.
Samuel Schoch, *Gen. Man*.....Marquette, Mich.
M. B. McGee, *Pur. Agt*.......Marquette, Mich.
W. H. Williams, *M. M*.......Marquette, Mich.
H. D. Lyons, *M. C. B*..........Marquette, Mich.
Massachusetts Central R. R. 4-8½ g. 48 m.
E. G. Allen, *Supt. & P. A*..........Boston, Mass.
Memphis & Charleston R. R. (*See E. Tenn. Va. & Ga.*)
Memphis & Lit. Rock R. R. 5 g. 135 m. 14 lo. 272 c.
E. K. Sibley, *G. Man. & P. A.*.Little Rock, Ark.
H. G. Fleming, *Supt*..........Memphis, Tenn.
Thos. Rennell, *M. M*..........Argenta, Ark.
P. Twitchell, *M. C. B*..........Argenta, Ark.
Mexican Central Ry.
Howard Hinckley, *Pur. Agt*....Boston, Mass.
Main Line:
Rudolph Fink, *Gen. Man*.......City of Mexico.
J. H. Garner, *Supt. Trans*.....City of Mexico.
F. W. Johnson, *M. M*..........City of Mexico.
J. H. O'Brien, *M. C. B*..........City of Mexico.
Chihuahua Div.:
D. B. Robinson, *G. Supt*. El Paso del Norte, Mex.
J. N. Lauder, *Supt. R. S*..El Paso del Norte, Mex.
Tampico Div.:
Edward A. Whorf, *Supt*.......Tampico, Mex.
Mexican National Ry. (*See Tex.-Mex.*)
Michigan Cen. R. R. 4-8½ g. 1,013 m. 266 lo. 8,000 c.
H. B. Ledyard, *Gen. Man*..........Detroit, Mich.
E. C. Brown, *Gen. Supt*..........Detroit, Mich.
W. P. Taylor, *Gen. Supt*..........Buffalo, N. Y.
Allan Bourn, *Pur. Agt*..........Detroit, Mich.
S. H. Edgerly, *Gen. M. M*.......Jackson, Mich.
Robert Miller, *Gen. M. C. B*.......Detroit, Mich.
East. Div.: D. S. Sutherland, *Supt.* Detroit, Mich.
Bay City, Saginaw & Mackinaw Divisions.:
W. A. Vaughan, *Supt*..........Bay City, Mich.
C. E. Smart, *M. M*..........Bay City, Mich.
Main Line: Gr. Rap.; So. Bend; and So. Hav. Divs.:
C. B. Bush, *Supt*..........Jackson, Mich.
W'n Divs.: R. H. L'Hommedieu, *Supt.* Chicago, Ill.
Middleburg & Schoharie; and
Schoharie Valley R. Rs. 4-8½ g. 10 m. 2 lo. 4 cars.
S. S. Danforth, *Gen. Supt*....Middleburg, N. Y.
Midland of Canada. 4-8½ g. 143 m. 12 lo. 503 cars.
Geo. A. Cox, *Gen. Man*.....Peterborough, Ont.
W. B. Ferguson, *Gen. Supt*. Peterborough, Ont.
C. H. Crofts, *Storekeeper*....Peterborough, Ont.
J. Haggas, *Mech. Supt*..........Port Hope, Ont.
Edward Douglas, *M. C. B*.......Port Hope, Ont.
H. H. Harry, *M. C. B*..........Lindsay, Ont.
Toronto & Nipissing Div. 3-6 g. 105 m. 12 lo. 211 c.
J. Haggas, *M. M*..........Uxbridge, Ont.
Chas. E. Caron, *M. C. B*.......Uxbridge, Ont.
Midland No. Car. Ry. 5 g. 95 m. 9 lo. 82 cars.
J. W. Andrews, *Gen. Man*.....Newbern, N. C.
Jno. P. Caddagan, *Pur. Agt*....Newbern, N. C.
J. W. Andrews, *Supt*..........Goldsboro, N. C.
B. Manly, *Supt. of Mach*..........Newbern, N. C.
Milwaukee, Lake Shore & Western Ry.
4-8½ g. 322 m. 40 lo. 1,536 cars.
H. G. H. Reed, *Gen. Man. & P. Agt.* Milwaukee, Wis.
J. Donahue, *Supt*..........Milwaukee, Wis.
Chas. S. Hayden, *Asst. Supt*...Manitowoc, Wis.
David B. Curtis, *Asst. Supt*.....Oshkosh, Wis.
John Hickey, *M. M*..........Manitowoc, Wis.
Milwaukee & Northern.
C. F. Dutton, *Gen. Supt*..........Milwaukee, Wis.
N. S. Kimball, *M. M*..........Green Bay, Wis.
Mineral Range R. R. 3 g. 13 m. 4 lo. 42 cars.
Chas. E. Holland, *Pr. & Supt*...Hancock, Mich.
W. H. Carr, *Pur. Agt*..........Hancock, Mich.
T. J. Shellhorn, *M. M. & C. B*. Hancock, Mich.
Minneapolis & St. L. Ry. 4-8½ g. 506 m. 60 lo. 1,850 c.
Gen. Man.......Minneapolis, Minn.
E. Ryder, *Gen. Supt. & Pur. Agt.* Min'p's, Minn.
Geo. F. Wilson, *Supt. of M*. Minneapolis, Minn.
Mississippi & Tenn. R. R. 4-8½ g. 101 m. 11 lo. 194 c.
M. Burke, *Gen. Supt*..........Memphis, Tenn.
J. C. Ramsey, *M. M*..........Memphis, Tenn.
S. J. Bolton, *M. C. B*..........Memphis, Tenn.
Missouri Pacific Ry. (Leased and operated lines.)
4-8½ g. 5,785 m. 626 lo. 16,119 cars.
A. A. Talmage, *Gen. Man*..........St. Louis, Mo.
R. B. Lyle, *Pur. Agt*..........St. Louis, Mo.
H. H. Sessions, *M. C. B*..........Marshall, Tex.
(1) Missouri Pac. Ry. 4-8½ g. 2,708 m. 324 lo. 10,000 c.
John Hewitt, *Supt. Mach*..........St. Louis, Mo.
John Hodge, *Supt. Car Dep*.......St. Louis, Mo.
Main Line, Warder Cumming, *Supt*. Sedalia, Mo.
C. L. Dunham, *Supt*. W'n Div., Kansas City, Mo.
Le Roy Bartlett, *Asst. M. M*....St. Louis, Mo.
Geo. Walshe, *M. M*..........Sedalia, Mo.

M., K. & Tex. Div., J. M. Eddy, Supt. Sedalia, Mo.
J. C. Barber, Asst. Supt. Car Dep. Sedalia, Mo.
J. W. Haines, M. M. .... Parsons, Kan.
Cen. Br. Div., W. W. Fagan, Supt. Atchison, Kan.
H. V. Faries, M. M. .... Atchison, Kan.
S. Irvin, Asst. Supt. Car Dep. .. Atchison, Kan.
(1) St. L., I. M. & So. 4-8½ g. 818 m. 141 lo. 4,860 c.
Wm. Kerrigan, Supt. .... Louis, Mo.
O. A. Haynes, S. M. P. & M. .... De Soto, Mo.
St. Louis Div.: W. H. Harris, M. M. De Soto, Mo.
Ark. Div.: R. M. Richardson, M. M. Little Rock, Ark.
(2) Texas & Pac. 4-8½ g. 1,322 m. 144 lo. 3,070 c.
E. L. Dudley, Supt. .... Marshall, Tex.
O. A. Haynes, S. M. P. & M. .... Marshall, Tex.
New Or. Div.: J. T. Whedon, Supt. Gouldsboro, La.
Perry Sternes, M. M. .... Marshall, Tex.
Eastern Div.: J. Williams, Supt. .. Longview, Tex.
Rio Gr. Div.: G. O. Clinton, Supt. Big Springs, Tex.
W. H. Reilly, M. M. .... Fort Worth, Tex.
J. E. Wiggin, M. M. .... Big Springs, Tex.
(3) Int. & G. North. 4-8½ g. 776 m. 73 lo. 1,712 c.
Jos. Harrin, Supt. .... Palestine, Tex.
O. A. Haynes, S. M. P. & M. .... Palestine, Tex.
O. H. Johnson, M. M. .... Palestine, Tex.
Mobile & Ala. Grand Trunk R. R. 5 g. 59 m. 2 lo. 23 c.
Wm. H. Pratt, Trustee .... Mobile, Ala.
Mobile & Girard R. R. 5 g. 84 m. 7 lo. 112 cars.
W. L. Clark, Gen. Supt. .... Columbus, Ga.
J. C. Albrecht, M. M. .... Columbus, Ga.
A. J. Nix, M. C. B. .... Columbus, Ga.
Mobile & Ohio R. R. 5 g. 528 m. 75 lo. 1,353 cars.
A. L. Rives, V.-Pr. & Gen. Man. .... Mobile, Ala.
R. H. Briggs, Gen. M. M. .... Whistler, Ala.
J. T. Booth, M. C. B. .... Whistler, Ala.
So'n Div., I. G. Motley, Supt. .... Mobile, Ala.
John Fitzgerald, M. M. .... Macon, Miss.
No'n Div.: E. S. Horsford, Supt. Jackson, Tenn.
M. T. Carson, M. M. .... Jackson, Tenn.
Mobile & Spring Hill R. R. 5 g. 8 m. 10 lo. 90 cars.
F. Ingate, Supt. .... Mobile, Ala.
Mont Alto R. R. 4-9 g. 21 m. 2 lo. 3 cars.
G. B. Weistling, Supt. & P. A. .... Mont Alto, Pa.
Montpelier & Wells Riv. R. R. 4-8½ g. 38 m. 3 lo. 76c.
Supt. .... Montpelier, Vt.
Morgan's Louisiana & Tex. R. R. 4-8½ g. 165 m.
G. Pandeley, Supt. .... New Orleans, La.
C. Trumpy, Pur. Agt. .... New Orleans, La.
N. Tilton, M. M. .... Algiers, La.
Wm. O'Brien, M. C. B. .... Algiers, La.
Muncy Creek Ry. 4-8½ g. 10 m.
Benj. G. Welch, Rec. & P. Agt. Hughesville, Pa.
J. V. Chamberlain, Supt. & M. M. do.

N

Nashville, Chattanooga & St. Louis R'y.,
5 g. 508 miles 87 lo. 1,979 cars.
J. W. Thomas, G. Supt. & P. Agt. Nashville, Tenn.
M. J. C. Wrenne, Supt. .... Nashville, Tenn.
James Cullen, M. M. & C. B. .. Nashville, Tenn.
Natchez, Jackson & Col. R. R. 3-6 g. 98 m. 7 lo. 72 c.
Belton Mickle, Supt. .... Natchez, Miss.
Naugatuck R. R., 4-8½ g. 61 miles, 14 lo. 384 cars.
Geo. W. Beach, Supt. .... Waterbury, Ct.
Henry Hanford, M. M. .... Bridgeport, Ct.
Geo. W. Gray, M. C. B. .... Bridgeport, Ct.
Nevada Central R. R. (See Union Pac.)
Nevada County N. G. R. R. 3 g. 23 m. 3 lo. 46 cars.
John F. Kidder, Supt. .... Grass Valley, Cal.
Jas. McCormick, M. M. & C. B. Grass Valley, Cal.
New Brunswick Ry. 4-8½ g. 194 m. 12 lo. 266 cars.
E. R. Burpee, Gen. Man. .... Gibson, N. B.
Henry Osborn, Gen. Supt. .... Gibson, N. B.
Alfred Seely, Pur. Agt. .... Gibson, N. B.
Jesse Mathews, M. M. .... Gibson, N. B.
T. N. Burpee, M. C. B. .... Gibson, N. B.
New Brunswick & Can. Ry. 4-8½ g. 127 m. 12 lo. 184c.
Henry Osborn, G. M. & P. A. St. Andrew's, N. B.
John Stewart, Supt. .... St. Stephen, N. B.
Thos. Armstrong, M. M. .... St. Andrew's, N. B.
G. Houlton, M. C. B. .... St. Andrew's, N. B.
New Haven & Derby R. R. 4-8½ g. 13 m. 3 lo. 58 c.
E. S. Quintard, Supt. .... New Haven, Conn.
J. M. Whitlock, M. M. & C. B. New Haven, Conn.
New Haven & No'mpton. 4-8½ g. 135 m. 26 lo. 572 c.
C. A. Goodnow, Supt. .... New Haven, Ct.
C. N. Yeamans, Pur. Agt. .... New Haven, Ct.
Henry Fox, M. M. .... New Haven, Ct.
John Sweeny, M. C. B. .... New Haven, Ct.
New Jersey & New York Ry. 4-6 g. 43 m. 6 lo. 40 c.
J. D. Hasbrouck, Gen. Man. Jersey City, N. J.
J. S. Drake, Supt. & M. M. .... Hillsdale, N. J.
L. B. Van Wagonen, M. C. B. .... Hillsdale, N. J.
New Jersey Southern Ry. (See Central, N. J.)
New London Northern R. R. (See Central Ver.)
New Orleans Pacific Ry. 5 g. 85 m. 10 lo. 206 cars.
H. S. Morse, Supt. .... New Orleans, La.
E. R. Smith, M. M. & C. B. .... New Orleans, La.
N. Y. Central & Hudson River R. R.
4-8½ g. 962 m. 676 lo. 22,539 cars.
J. M. Toucey, Gen. Supt. .... New York, N. Y.
R. C. Moore, Pur. Agt. .... New York, N. Y.
Wm. Buchanan, Supt. M. P. .. New York, N. Y.
L. Garey, Supt. Car Dept. .... New York, N. Y.
N. Y. & Har. Div.: C. M. Bissell, Supt. do.
P. McQ. Gibson, M. M. .... New York, N. Y.
C. E. Garey, M. C. B. .... Morrisania, N. Y.
Hud. Riv. Div.: C. M. Bissell, Supt. N. York, N. Y.
Peter Smith, M. C. B. .... New York, N. Y.
E'n Div.: Zenas C. Priest, Supt. .... Utica, N. Y.
G. B. Van Vorst, M. M. .... West Albany, N. Y.
D. Holt, M. C. B. .... West Albany, N. Y.
W'n Div.: Geo. H. Burrows, Supt. Rochester, N. Y.
S. L. White, M. M. .... Syracuse, N. Y.
Amos Gould, M. M. .... E. Buffalo, N. Y.
E. A. Olmstead, M. C. B. .... E. Buffalo, N. Y.
C. H. Burchard, M. C. B. .. E. Rochester, N. Y.
Rd. Donaby, M. C. B. .... Niagara Falls, N. Y.
N. Y. Chic. & St. L. Ry. 4-8½ g. 269 m. 115 lo. 4,838 c.
Lewis Williams, Gen. Man. .... Cleveland, O.
E. Dwight, Gen. Supt. .... Cleveland, O.
Jno. W. Dougherty, Pur. Agt. .... Cleveland, O.
E. P. Boatman, Supt. M. P. .... Cleveland, O.
Eas'tn Div.: G. H. Kimball, Supt. .. Cleveland, O.
E. A. Miller, M. M. .... Conneaut, O.
West'n Div.: E. E. Dwight, Supt. .... Chicago, Ill.
Jas. Eckford, M. M. .... Bellevue, O.
New York City & Northern. 4-8½ g. 52 m. 7 lo. 91 c.
Frank S. Gannon, Gen. Supt. High Bridge, N. Y.
Theo. Wheeler, M. M. .... High Bridge, N. Y.
New York, Lake Erie & Western R. R.
4-8½ g. 1,020 m. 568 loco. 30,500 cars.
Robt. Harris, V. Pr. & G. Man. New York, N. Y.
E. S. Bowen, Gen. Supt. .... New York, N. Y.
J. A. Hardenburg, Pur. Agt. .. New York, N. Y.
F. M. Wilder, Supt. M. P. & M. .. Susqueh'a, Pa.
E'n Div.: E. O. Hill, Supt. .... Jersey City, N. J.
J. H. Vreeland, M. M. .... Jersey City, N. J.
J. N. Mileham, M. C. B. .... Jersey City, N. J.
Del. Div.: W. J. Murphy, Supt. Port Jervis, N. Y.
J. Van Vechten, M. M. & C. B. Pt. Jervis, N. Y.
Susq. Div.: R. B. Cable, Supt. .... Elmira, N. Y.
V. Blackburn, M. M. .... Susquehanna, Pa.
D. B. Goodell, M. C. B. .... Elmira, N. Y.
Buf. & R. Divs.: Chas. Neilson, Supt.; and
G. B. Ross, M. M. .... Buffalo, N. Y.
M. Wilder, M. C. B. .... Buffalo, N. Y.
B. & S.-W. Div.: C. A. Brunn, Supt. do.
W'n Div.: W. B. Coffin, Supt. Hornellsville, N. Y.
R. Gunn, M. M. .... Hornellsville, N. Y.
New York, New Haven & Hartford R. R.
4-8½ g. 203 m. 123 lo. 2,768 cars.
E. M. Reed, V. P. & Gen. Man. New Haven, Ct.
R. N. Dowd, Pur. Agt. .... New Haven, Ct.
N. Y. & N. H. Div.: W. H. Stevenson, Supt. .. N. Y.
Shore Line Div.:
O. M. Shepard, Supt. .... N. Haven, Ct.
Air Line Div.: O. M. Shepard, Supt. N. Haven, Ct.
H. Kettendorf, Supt. M. P. .. New Haven, Ct.
Jas. Denver, M. C. B. .... New Haven, Ct.
Hart. Div.: C. S. Davidson, Supt. .... Hartford, Ct.
John Henny, Jr., Supt. M. P. & M. C. B. .... do.
New York, Ontario & Western Ry.
4-8½ g. 345 m. 79 lo. 1,530 cars.
Jas. E. Childs, Gen. Supt. .... New York, N. Y.
I. W. Fowler, Pur. Agt. .... Middletown, N. Y.
Edw. Minshull, M. M. & C. B. Middletown, N. Y.
Mid. Div.: N. R. Hankins, Supt. Middletown, N. Y.
No'n Div.: C. W. Lanpher, Supt. .... Norwich, N. Y.
So. Div.: E. Canfield, Supt. .... Tappan, N. Y.

New York, Pennsylvania & Ohio R. R.
4-8½ g. 564 m. 218 lo. 7,394 cars.
J. M. Ferris, Gen. Man. .... Cleveland, Ohio.
J. H. Holway, Pur. Agt. .... Cleveland, Ohio.
Wm. Fuller, Gen. M. M. & C. B. .. Cleveland, O.
S. V. Smith, Asst. Gen. M. C. B. .... Kent, Ohio.
E'n Div.: A. L. Dunbar, Supt. .... Meadville, Pa.
J. A. Cooper, M. M. .... Meadville, Pa.
D. S. Dockstader, M. C. Rep. .. Meadville, Pa.
J. T. Fosdick, For. Car Rep. Salamanca, N. Y.
W'n Div.: J. W. Alsop, Supt. .... Galion, O.
Wm. Hill, M. M. .... Galion, O.
J. W. Holmes, For. Car Rep. .... Galion, O.
Geo. Wilson, For. Car Rep. .... Dayton, Ohio.
Maho'g Div.: N. F. Wood, Supt. .... Cleveland, O.
N. Wright, M. M. .... Cleveland, O.
C. N. Thorp, M. C. Rep. .... Cleveland, O.
New York, Providence & Boston R. R.
4-8½ g. 72 m. 29 lo. 430 cars.
J. B. Gardner, Supt. .... Providence, R. I.
Giles F. Ward, Pur. Agt. .... Stonington, Conn.
J. H. Anderson, M. M. & C. B. Providence, R. I.
N. Y., Susquehanna & W'n. 4-9 g. 135 m. 28 lo. 925 c.
H. M. Britton, Gen. M. & P. A. New York, N. Y.
W. C. Ennis, M. M. & C. B. .. Wortendyke, N. J.
New York, West Shore & Buffalo Ry.
Chas. Paine, Gen. Man. .... New York, N. Y.
Howard Fry, Supt. M. P. .... New York, N. Y.
P. S. Bemis, Pur. Agt. .... New York, N. Y.
Walkill Ry. G. H. Graves, Supt. .. Rondout, N. Y.
New York, Woodhaven & Rockaway R. R.
4-8½ g. 28 m. 8 lo. 101 cars.
J. M. Lunt, Supt. & P. Agt. .. Hunter's Pt., L. I.
W. B. Turner, M. M. .... Hunter's Point, L. I.
N. Y. & Greenwood Lake Ry. 4-8½ g. 44 m. 8 lo. 53 c.
Stephen Smith, Supt. .... Jersey City, N. J.
J. A. Hardenburg, Pur. Agt. .. New York, N. Y.
G. A. Hill, M. M. .... Pompton, N. J.
N. Y. & Manhattan Beach Ry. 3 g. 23 m. 12 lo. 128 c.
D. C. Corbin, Man. Dir. .... New York, N. Y.
O. Fairhurst, M. M. .... Greenpoint, L. I.
New York & New England R. R.
4-8½ g. 463 m. 127 lo. 3,326 cars.
S. M. Felton, Jr., Gen. Man. .... Boston, Mass.
W. W. McKim, Pur. Agt. .... Boston, Mass.
Ross Kells, Supt. M. P. .... Boston, Mass.
A. K. Mansfield, Mech. Eng. .... Boston, Mass.
D. P. Wright, M. M. .... Norwood, Mass.
H. E. Barker, Gen. Fore. .... Norwood, Mass.
East Div.: C. C. F. Bent, Supt. .... Boston, Mass.
C. B. Moore, M. M. .... Boston, Mass.
Nor. Div.: P. St. M. Andrews, Supt. .. Norwich, Ct.
W. A. Stone, M. M. .... Norwich, Ct.
Prov. Div.: L. W. Palmer, Supt. .. Providence, R. I.
Hfd. Div.: E. Holbrook, Supt. .... Hartford, Ct.
E. M. Humstone, M. M. .... Hartford, Ct.
D. F. Andregg, For. C. Dept. .... Hartford, Ct.
Newburg, Dutchess & Conn. R. R. 4-8½ g. 58 miles.
C. L. Kimball, Gen. Supt. .... Matteawan, N. Y.
W. G. Van Buskirk, M. M. & C. B. do.
Norfolk & Western R. R. 5 g. 428 m. 82 lo. 1,220 c.
Henry Fink, 2d V. Pr. & Gen. Man. Lynchb'g, Va.
W. C. De Armond, Pur. Agt. .. Philadelphia, Pa.
C. Blackwell, Supt. M. P. .... Roanoke, Va.
West'n Div.: Frank Huger, Supt. .. Lynchburg, Va.
F. Sterk, M. M. .... Lynchburg, Va.
East'n Div.: N. M. Osborne, Supt. .. Petersburg, Va.
J. T. Robinett, M. M. & C. B. .. Petersburg, Va.
North-Eastern R. R. of Ga. 5 g. 40 m. 2 lo. 18 cars.
H. R. Bernard, Supt. .... Athens, Ga.
North-Eastern R. R. (S. C.) (See Wil. & Wel.
North Pacific Coast R. R. 3 g. 84 m. 12 lo. 320 cars.
David Nye, Gen. Supt. .... San Rafael, Cal.
W. F. Russell, Pur. Agt. .... San Francisco, Cal.
J. Fowler, M. M. .... Sancelito, Cal.
North Shore
A. Davis, Gen. Man. .... Quebec, Can.
Northern (N. H.), and Concord & Claremont Rys.
4-8½ g. 173 m. 25 lo. 569 cars.
Geo. E. Todd, Supt. .... Concord, N. H.
M. M. & C. B. & Pur. Agt. do.
Northern (N. J.) R. R. (See N. Y., L. E. & W'n.)
Northern Central Ry. (See Penna. (R. R.)
North'n Pacific R. R. 4-8½ g. 1,193 m. 104 lo. 3,089 c.
Herman Haupt, Gen. Man. .... St. Paul, Minn.
John H. Ames, Pur. Agt. .... St. Paul, Minn.
Geo. W. Cross, Supt. Trans. .... St. Paul, Minn.
Geo. W. Cushing, Supt. M. P., M. & R. S. do.
W. T. Small, Asst. S. M. P. & M. do.
St. P. & Minn. Divs.: B. McHugh, Supt., do.
H. J. Small, A. S. Mach. (E. D.) Brainerd, Minn.
Frank Howard, M. C. B. .... Brainerd, Minn.
Dakota Div.: J. T. Odell, Supt. .... Fargo, Dak.
A. Rupert, M. M. .... Fargo, Dak.
Mo. Div.: D. R. Taylor, Supt. .... Mandan, Dak.
E. F. Doran, M. M. .... Mandan, Dak.
Yell'st'e Div.: S. R. Ainslie, Supt. Glendive, Mont.
S. L. Bean, M. M. .... Glendive, Mont.
G. S. La Rue, M. M. .... Billings, Mont.
(2) Western Div.: J. M. Buckley, A. G. M.; and
Otis Sprague, Supt. .... New Tacoma, W. T.
H. D. Sanborn, Pur. Agt. .... Portland, Ore.
W. T. Small, A. S. Mach. (W. D.) Sprague, W. T.
F. C. Ford, M. M. .... New Tacoma, W. T.
S. Wishart, M. C. B. .... New Tacoma, W. T.
Pend d'Ore Div.:
H. W. Fairweather, Supt. .. Ainsworth, W. T.
J. F. Curtis, M. M. .... Sprague, W. T.
Northern & North-W'n Ry. 5-6 & 4-8½ g. 50 lo. 1,033 c.
James Webster, Supt. .... Toronto, Can.
W. C. Schreeber, Pur. Agt. .... Toronto, Can.
P. Clarke, M. M. .... Toronto, Can.

O

Ogdensburg & Lake Champlain R. R.
4-8½ g. 122 m. 33 lo. 1,160 cars.
A. A. Gaddis, Gen. Man. .... Ogdensburg, N. Y.
Abr. Klohs, Supt. & M. M. .... Malone, N. Y.
Ohio Central R. R. 4-8½ g. 230 m. 45 lo. 4,760 cars.
John E. Martin, Gen. Man. .... Toledo, O.
T. M. Peeler, Supt. .... Bucyrus, O.
F. W. Stewart, Pur. Agt. .... Toledo, O.
J. B. Morgan, M. M. & C. B. .... Bucyrus, O.
Ohio Southern. 4-8½ g. 119 m. 19 lo. 623 cars.
D. R. Ennis, Supt. .... Springfield, O.
H. C. Norton, Pur. Agt. .... Indianapolis, Ind.
W. B. Warren, M. M. .... Springfield, O.
Ohio & Mississippi Ry. 4-9 g. 615 m. 112 lo. 2,501 cars.
W. W. Peabody, Gen. Supt. .... Cincinnati, O.
G. E. Atwood, Pur. Agt. .... Cincinnati, O.
J. H. Setchel, Gen. M. M. .... Vincennes, Ind.
Cin. Div.: C. B. Cole, Supt. .... Seymour, Ind.
John Thumser, M. M. .... Seymour, Ind.
J. P. Coulter, M. C. B. .... Aurora, Ind.
Arthur Donaldson, M. M. .... Vincennes, Ind.
St. L. & Sp. Div.: C. M. Stanton, Supt. St. Louis, Mo.
J. W. Stokes, M. M. (Spring Div.). Pana, Ill.
Louisv. Div.: C. B. Cole, Supt. .... Louisville, Ky.
Oil City & Chicago R. R. 4-9 g. 56 m. 6 lo. 50 cars.
A. Vandiwort, Supt. .... New Castle, Pa.
Oil City & Ridgway R. R. 4-8½ g. 6 m. 1 lo. 43 cars.
A. F. Kent, Gen. Man. .... Oil City, Pa.
Old Colony R. R. 4-8½ g. 463 m. 110 lo. 2,802 cars.
J. R. Kendrick, Gen. Supt. .... Boston, Mass.
Main Li. Div.: J. H. French, Supt. .. Boston, Mass.
R. W. Husted, Pur. Agt. .... Boston, Mass.
J. K. Taylor, M. M. .... Boston, Mass.
A. Gleason, M. C. B. .... Boston, Mass.
Cape Cod Div.: C. H. Nye, Supt. .. Hyannis, Mass.
No. Div.: S. A. Webber, Supt. .... Fitchburg, Mass.
George W. Reynolds, M. M. .... Taunton, Mass.
Sam. Stevens, M. C. B. .... Taunton, Mass.
Olean, Bradford & Warren: Bradford; Kinzua; and
Kendall & Eldred R. Rs. 3 g. 38 m. 9 lo. 222 cars.
J. W. Watson, Gen. Supt. .... Olean, N. Y.
J. H. Poole, Pur. Agt. .... Buffalo, N. Y.
Charles Turner, M. M. & C. B. .... Olean, N. Y.
Oregon Ry. & Nav. Co. 4-8½ g. 225 m. 31 lo. 930 cars.
C. H. Prescott, Manager .... Portland, Ore.
R. E. O'Brien, Asst. Man. & Act. Supt. do.
K. Von Oterendorf, Supt. (O. Div.) S. F'cisco, Cal.
H. S. Rowe, Supt. (Ry Div.) .... Portland, Ore.
J. M. Drake, Pur. Agt. .... Portland, Ore.
C. C. Hobart, Gen. M. M. .... The Dalles, Ore.
Chas. A. Phipps, M. C. B. .... The Dalles, Ore.
N. G. Div.: Wm. Reed, Man. .... Portland, Ore.
James Walsh, M. M. .... Portland, Ore.
Oregon & California R. R. 4-8½ g. 200 m. 14 lo. 286 c.
R. Koehler, Act. Man. .... Portland, Ore.
J. Brandt, Gen. Supt. .... Portland, Ore.
A. Brandt, M. M. .... Portland, Ore.

Owensboro & Nashville R. R. 5 g. 44 m. 3 lo. 70 c.
R. S. Bevier, Act. Supt. .... Owensboro, Ky.
H. M. Gabel, M. M. & C. B. .... Owensboro, Ky.

P

Pacific Coast Ry. 3 g. 11 m.
J. M. Fillmore, Manager San Luis Obispo, Cal.
W. H. Masterman, M. M. & C. B. do.
Painesville & Youngstown R. R. 3 g. 65 m. 7 lo. 319 c.
R. K. Paige, Rec. & Man. .... Painesville, O.
J. A. Newcome, Supt. .... Painesville, O.
E. B. Baldwin, M. M. .... Painesville, O.
Panama R. R. 5 g. 58 m. 14 lo. 534 cars.
H. A. Woods, Supt. .... Aspinwall, U. S. Col.
E. Z. Penfield, Pur. Agt. .... New York, N. Y.
W. F. Ray, M. M. .... Aspinwall, U. S. Col.
Parker & Karns City; and
Karns City & Butler R. Rs. 3 g. 27 m. 5 lo. 84 cars.
W. C. Moberly, Gen. Supt. .... Parker City, Pa.
Philip Davies, M. M. .... Parker City, Pa.
Wm. Wolford, M. C. B. .... Parker City, Pa.
Passumpsic R. R. 4-8½ g. 145 m. 28 lo. 980 cars.
E. Raymond, Pres. & Pur. Agt. .. Boston, Mass.
H. E. Folsom, Supt. .... Lyndonville, Vt.
L. L. Brigham, M. M. .... Lyndonville, Vt.
L. F. Woodard, M. C. B. .... Lyndonville, Vt.
Peach Bottom R. R. 3 g. 55 m. 6 lo. 52 cars.
Samuel Dickey, Gen. Man. .... York, Pa.
G. R. Dickey, Supt. & Pur. Agt. .... York, Pa.
E. H. Williams, M. C. B. .... York, Pa.
E. Div.: S. Dickey, Supt. .... Oxford, Pa.
W. P. Kirk, M. M. .... Oxford, Pa.
Pennsylvania Co.'s (9) Roads.
4-9 g. 2,838 m. 817 lo. 29,432 cars.
Wm. Mullins, Gen. Pur. Agt. .... Pittsburg, Pa.
Joseph Wood, Supt. M. P. .... Fort Wayne, Ind.
(1) Clev. & Pittsb'g R. R. 4-9 g. 224 m. 97 lo. 3,336 c.
R. F. Smith, Asst. Man. .... Cleveland, O.
Philip Bruner, Supt. .... Wellsville, O.
W. F. Beardsley, Mast. of Mach. Wellsville, O.
(2 & 3) Erie & Ashtabula Rds. 178 m. 29 lo. 1,340 c.
John M. Kimball, Supt. .... Youngstown, O.
J. A. Wood, Gen. For. Shops .... Erie, Pa.
(4) Indianap. & Vincennes Rd. 117 m. 11 lo. 303 cars.
Jas. J. Turner, Supt. .... Indianapolis, Ind.
(5) Jeffersonville, Madison & Indianapolis R. R.
4-9 g. 217 m. 47 lo. 784 cars.
E. W. McKenna, Supt. .... Louisville, Ky.
Wm. Swanston, M. M. .... Jeffersonville, Ind.
Edw. Austin, M. C. B. .... Jeffersonville, Ind.
(6) Northwestern Ohio Ry. 4-9 g. 79 m.
J. S. Morris, Supt. .... Toledo, O.
(7) Pittsburg, Ft. Wayne & Chicago Ry.
4-9 g. 468 m. 278 lo. 6,782 cars.
E'n Div.: A. B. Starr, Supt. .... Allegheny, Pa.
Geo. J. Parkin, M. M. .... Allegheny, Pa.
D. M. Peppard, M. M. .... Crestline, O.
W'n Div.: C. D. Law, Supt. .... Ft. Wayne, Ind.
F. D. Casanave, M. M. .... Ft. Wayne, Ind.
A. H. Somers, Gen. For. Shops .. Chicago, Ill.
(8) Pittsburg, Cincinnati & St. Louis Ry.
4-9 g. 1,172 m. 336 lo. 6,482 cars.
Jas. McCrea, Gen. Supt. .... Columbus, O.
R. H. Soule, Supt. M. P. & M. .. Columbus, O.
P. & Col. Div.: E. B. Taylor, Supt. Dennison, O.
C. B. Street, M. M. .... Dennison, O.
A. K. Mansfield, M. C. B. .... Steubenville, O.
Robt. Curtis, M. M. .... Columbus, O.
Thos. Chamberlain, M. C. B. .. Columbus, O.
C. & M. V. Div.: W. F. Black, Supt. Zanesville, O.
Leroy Kells, M. M. .... Lancaster, O.
Daniel Jewell, M. C. B. .... Lancaster, O.
Li. Mi. Div.: Ralph Peters, Supt. .... Cincinnati, O.
Leroy Kells, M. M. .... Cincinnati, O.
Jos. Underwood, Gen. Foreman. Cincinnati, O.
Ind. Divs.: J. F. Miller, Supt. .... Richmond, Ind.
W. W. Reynolds, M. M. .... Logansport, Ind.
Chas. H. Starr, M. C. B. .... Logansport, Ind.
M. M. .... Indianapolis, Ind.
Chi. Div.: Chas. Watts, Supt. .. Logansport, Ind.
(9) Terre Haute & Indianapolis R. R.
4-9 g. 374 m. 83 lo. 2,868 cars.
Joseph Hill, Gen. Supt. .... St. Louis, Mo.
C. R. Peddle, P. Agt. .... St. Louis, Mo.
Geo. H. Prescott, S. M. P. & M. Terre Haute, Ind.
E. D. Carter, M. C. B. .... Terre Haute, Ind.
Clinton Idler, M. M. .... Indianapolis, Ind.
Chas. Butler, M. M. .... Effingham, Ill.
A. W. Quakenbush, M. M. .. Logansport, Ind.
Pennsylvania R. R. Co.'s Roads. (7 Gen. Divs.)
4-9 g. 2,704 m. 1,271 loco. 51,894 cars.
Chas. E. Pugh, Gen. Man. .... Philadelphia, Pa.
Enoch Lewis, Pur. Agt. .... Philadelphia, Pa.
John Reilly, Supt. Trans. .... Philadelphia, Pa.
T. N. Ely, Gen. S. M. P. (4 Gen. Divs.) Altoona, Pa.
(1) Pennsylvania R. R. Divs.
4-9 g. 1,105 m. 627 lo. 35,583 cars.
S. M. Prevost, Gen. Supt. .... Altoona, Pa.
Frank L. Sheppard, Supt. M. P. .. Altoona, Pa.
G. W. Strattan, M. M. .... Altoona, Pa.
Jno. P. Levan, Gen. Fore. .... Altoona, Pa.
Phila. Div.: Wm. J. Latta, Supt. Philadelphia, Pa.
H. D. Garrett, M. M. .... W. Philadelphia, Pa.
I. W. Van Houten, Gen. For. .... W. Phila., Pa.
Mid. Div.: H. H. Carter, Supt. .... Harrisburg, Pa.
E. L. Caum, M. M. .... Harrisburg, Pa.
Samuel W. Myers, Gen. For. Harrisburg, Pa.
Alt'a Div.: Jas. Reed, Supt. .... Altoona, Pa.
Pitts. Div.: Robert Pitcairn, Supt. .... Pittsburg, Pa.
D. O. Shaver, M. M. .... Pittsburg, Pa.
J. G. Stewart, Gen. For. .... Pittsburg, Pa.
W. Pa. Div.: A. P. Kirtland, Supt. Blairsville, Pa.
Wm. B. Norris, M. M. .... Blairsville, Pa.
M. H. Fails, Gen. For. .... Blairsville, Pa.
Fred. Div.: J. B. Hutchinson, Supt. .... York, Pa.
Tyrone Div.: S. S. Blair, Supt. .... Tyrone, Pa.
Lew. Div.: Wm. M. Phillips, Supt. Lewistown, Pa.
Bed. Div.: Thos. A. Roberts, Supt. .. Bedford, Pa.
Monong. Div.: David M. Watt, Supt. Pittsburg, Pa.
Wm. Lininger, M. M. .... Pittsburg, Pa.
(2) United R. Rs. of N. J. Divs. 414 m. 257 lo. 4,668 c.
F. Wolcott Jackson, Gen. St. Jersey City, N. J.
N. Y. Div.: Robt. E. Pettit, Supt. Jersey City, N. J.
H. S. Hayward, St. M. P. .. Jersey City, N. J.
David H. Baker, Gen. For. Jersey City, N. J.
L. A. Bosdevex, M. M. .... Jersey City, N. J.
E. F. Bosdevex, Gen. For. .. Jersey City, N. J.
Belv. Div.: J. A. Anderson, Supt. Lambertv., N. J.
R. McDowell, M. M. .... Lambertville, N. J.
Amboy Div.: I. S. Buckalew, Supt. Camden, N. J.
Thos. Kerr, M. M. .... So. Amboy, N. J.
P. S. Bocart, Gen. For. .... So. Amboy, N. J.
(3) West Jersey R. R. 4-9 g. 163 m. 22 lo. 342 cars.
Joseph Crawford, Supt. .... Camden, N. J.
W. McAllister, M. M. .... Camden, N. J.
C. C. Williams, Gen. For. .... Camden, N. J.
(4) Phila., Wilm. & Balt. R. R. 212 m. 80 lo. 1,488 c.
H. F. Kenney, Gen. Supt. .... Philadelphia, Pa.
S. A. Hodgman, M. M. .... Wilmington, Del.
W. H. Lungren, Gen. For. .... Wilmington, Del.
Cen. Div.: L. K. Lodge, Supt. .. Philadelphia, Pa.
S. D. Danfield, M. M. & C. B. .... Chester, Pa.
Del. Div.: I. N. Mills, Supt. .... Philadelphia, Pa.
(5) Phila. & Erie R. R. Divs.: 376 m. 117 lo. 3,481 c.
R. Neilson, Gen. Supt. .... Williamsport, Pa.
A. O. Dayton, Supt. Mo. Po. .. Williamsport, Pa.
E'n. Div.: Thos. Gucker, Supt. Williamsport, Pa.
Sun. H. & W. Div.: A. Walters, Supt.; and
W. F. Beardsley, M. M. .... Sunbury, Pa.
Mid. Div.: E. B. Westfall, Supt. .... Renova, Pa.
Wm. L. Holman, M. M. .... Renova, Pa.
West'n Div.: J. W. Reynolds, Supt. .... Erie, Pa.
W. T. Smith, M. M. .... Erie, Pa.
(6) Northern Central Ry. 4-9 g. 320 m. 152 lo. 6,163 c.
Robert Neilson, Gen. Supt. .. Williamsport, Pa.
A. O. Dayton, Supt. M. P. .. Williamsport, Pa.
A. W. Sumner, Pur. Agt. .... Baltimore, Md.
Susq. Div.: A. Walters, Supt. .... Williamsport, Pa.
Sham. Div.: Supt. .... Sunbury, Pa.
Elm. & Can. Divs.: S. Meade, Supt. .. Elmira, N. Y.
Jas. Strode, M. M. .... Elmira, N. Y.
J. C. Dyott, Gen. For. .... Elmira, N. Y.
Baltimore Div.: H. W. Knapp, Supt. Baltimore, Md.
(7) Balt. & Pot. & Alex. & Fred. 128 m. 29 lo. 356 c.
G. C. Wilkins, Gen. Supt. .... Baltimore, Md.
A. W. Sumner, Pur. Agt. .... Baltimore, Md.
J. M. Wallis, Supt. Mo. Po. .... Baltimore, Md.
J. M. Coale, M. M. .... Baltimore, Md.
G. W. Demarest, Gen. For. .... Baltimore, Md.

Penn. Coal Co.'s R. R. 4-3 g. 67 m. 23 eng. 2,871 c.
J. B. Smith, Gen. Supt. .... Dunmore, Pa.
And. Crane, M. M. .... Dunmore, Pa.
Geo. W. Simpson, M. C. B. .... Dunmore, Pa.
Pennsylvania & Erie R. R.—Early Branch.
C. R. Early, Gen. Supt. .... Ridgeway, Pa.
Pensacola & Perdido R. R. 6 g. 8 m. 5 lo. 73 cars.
B. F. Simmons, Pr. & Supt. .... Pensacola, Fla.
H. W. Simmons, Pur. Agt. .... Pensacola, Fla.
R. G. Nicholl, M. M. & C. B. .... Pensacola, Fla.
Peoria, Decatur & Evansville Ry.
4-8½ g. 254 m. 30 lo. 1,458 cars.
G. L. Bradbury, Gen. Man. .... Peoria, Ill.
P. Reilly, M. M. .... Mattoon, Ill.
Peoria & Farmington R. R. 4-8½ g. 25 m. 2 lo. 25 c.
D. P. Phelps, Gen. Man. .... Monmouth, Ill.
John F. Wallace, Supt. .... Farmington, Ill.
Peoria & Pekin Union Ry. 4-8½ g. 20 m. 12 lo. 100 c.
Thos. B. Burnett, Gen. Supt. & P. A. Peoria, Ill.
R. F. Hurd, M. M. & C. B. .... Peoria, Ill.
Perkiomen R. R. 4-8½ gauge 39 miles.
D. B. Clack, Supt. .... Perkiomen Junction, Pa.
Petersburg R. R. 4-8½ g. 64 m. 10 lo. 131 cars.
R. M. Sully, Gen. Supt. .... Petersburg, Va.
L. E. Clark, Pur. Agt. .... Petersburg, Va.
R. B. Andrews, M. M. .... Petersburg, Va.
J. W. Fleming, M. C. B. .... Petersburg, Va.
Phila., Wilmington & Balt. R. R. (See Penna. R. R.)
Phila. & Atlantic City Ry. 3-6 g. 54 m. 11 lo. 134 cars.
F. S. Urie, Supt. & Pur. Agt. Philadelphia, Pa.
John T. Keihner, M. M. .... Camden, N. J.
E. Lippincott, M. C. B. .... Camden, N. J.
Phila. & Reading. 4-8½ g. 486 m. 539 lo. 24,606 cars.
John E. Wootten, Gen. Man. .. Philadelphia, Pa.
W. S. Wilson, Pur. Agt. .... Philadelphia, Pa.
Geo. Eltz, Supt. Trans. .... Reading, Pa.
L. B. Paxson, Eng. of Mach. .... Reading, Pa.
No. Pa. & B. Brk. Div.:
I. A. Sweigard, Supt. .... Philadelphia, Pa.
Mah. & Sham. Br.:
J. H. Olhausen, Supt. .... Mahoney Plane, Pa.
Cat. & Willp't. Br.:
D. C. Reinhart, Supt. .... Williamsport, Pa.
M. Hill & S. Haven Br.:
A. A. Hesser, Supt. .... Cressona, Pa.
Sch. & Sus. Br.:
H. H. Tracy, Supt. .... Pine Grove, Pa.
Read. & Col. Br.:
A. M. Wilson, Supt. .... Columbia, Pa.
Pittsburg, Bradford & Buffalo Ry. 3 g. 31 m. 4 lo. 79c.
J. M. Dickey, Gen. Man. .... Foxburg, Pa.
W. D. Reed, Supt. .... Foxburg, Pa.
Pittsburg, Cincinnati & St. Louis Ry. (See Penna. Co.)
Pittsburg, Ft. Wayne & Chicago Ry. (See Penna. Co.)
Pittsburg Southern Ry. 3 g. 38 m. 4 lo. 64 cars.
M. D. Hays, Supt. & P. A. .... Pittsburg, Pa.
W. S. Marshall, M. M. .... Pittsburg, Pa.
E. B. Gosline, M. C. B. .... Pittsburg, Pa.
Pitts. & Castle Shannon R. R. 3-4 g. 9 m. 5 lo. 388 c.
James M. Bailey, Gen. Supt. .... Pittsburg, Pa.
Holmes Ward, M. M. .... Castle Shannon, Pa.
Wm. E. Long, M. C. B. .... Pittsburg, Pa.
Pitts. & Lake Erie R. R. 4-8¾ g. 70 m. 31 lo. 1,688 c.
W. C. Quincy, Gen. Man. .... Pittsburg, Pa.
R. W. Jones, Mast. Trans. .... Pittsburg, Pa.
S. W. Haines, M. M. .... Pittsburg, Pa.
Pittsburg & Western R. R. 3 g. 47 m. 2 lo. 76 cars.
E. K. Hyndman, Gen. Man. .... Pittsburg, Pa.
C. P. Ford, Pur. Agt. .... Allegheny, Pa.
W. L. Hofecker, M. M. .... Zellenople, Pa.
Port Huron & No.-Western Ry. 3 g. 105 m. 4 lo. 66 c.
H. McMorran, G. Man. & P. A. Port Huron, Mich.
I. R. Wadsworth, Supt. .... Port Huron, Mich.
Chas. Deifenbaugh, M. M. .. Port Huron, Mich.
Benj. Hillier, M. C. B. .... Port Huron, Mich.
Port Royal & Augusta Ry. 5 g. 112 m. 13 lo. 235 c.
J. N. Bass, Supt. .... Augusta, Ga.
John McCann, M. M. .... Augusta, Ga.
J. H. Milton, M. C. B. .... Augusta, Ga.
Portland & Ogdensburg. 4-8½ g. 114 m. 11 lo. 289 c.
J. Hamilton, Gen. Supt. & P. A. .. Portland, Me.
Geo. H. Poor, M. M. .... Portland, Me.
W. G. Brewer, M. C. B. .... Portland, Me.
Portland & Rochester R. R. 4-8½ g. 52 m. 7 lo. 230 c.
J. W. Peters, Supt. & Pur. Agt. .. Portland, Me.
E. H. C. Tompson, For. of Mach. .. Portland, Me.
David Dow, For. of Car Repairs Portland, Me.
Potomac, Fred.'g & Pied. R. R. 3 g. 38 m. 2 lo. 38 c.
Will M. Grafton, Supt. .... Fredericksburg, Va.
Pough., Hart. & Bos. R. R. 4-8½ g. 45 m. 4 lo. 64 c.
J. A. Perkins, Supt. .... Poughkeepsie, N. Y.
John L. Donaldson, M. M. Poughkeepsie, N. Y.
Prince Edward Island Ry. 3-6 g. 199 m. 17 lo. 280 c.
L. B. Archibald, Supt. & Pur. Agt.;
Jos. Unsworth, M. Supt. & Storekeeper; and
D. M. Fraser, M. C. B. .. Charlottetown, P. E. I.
Prov., Warren & Bristol R. R. 4-8½ g. 19 m. 5 lo. 38 c.
Waterman Stone, Supt. .... Providence, R. I.
Rufus Smith, M. M. & C. B. .... Bristol, R. I.
Prov. & Springfield R. R. 4-8½ g. 23 m. 3 lo. 83 c.
Wm. Tinkham, Gen. Man. .... Providence, R. I.
G. T. Richardson, M. M. .... Providence, R. I.
Prov. & Worcester. 4-8½ g. 66 m. 30 lo. 858 c.
W. E. Chamberlain, Supt. .... Providence, R. I.
A. Griggs, Supt. L. & C. D. .. Providence, R. I.
Pullman's Palace Car Co. 472 passenger cars.
A. B. Pullman, 2d V.-Pr. & G. M. .. Chicago, Ill.
Geo. F. Brown, Gen. Supt. .... Chicago, Ill.
Wm. A. Angell, Pur. Agt. .... Chicago, Ill.
S. W. Bretzfield, Asst. Pur. Agt. New York, N. Y.
A. Rapp, Man. (Chicago Works) .. Chicago, Ill.
H. L. Spaulding, Man. (Det. Shops) Detroit, Mich.
E. A. Benson, Supt. Shops .... St. Louis, Mo.

Q

Quebec Central Ry. 4-8½ g. 139 m. 3 lo. 79 cars.
A. Steele, Supt. .... Sherbrooke, Que.
R. D. Morkill, Pur. Agt. .... Sherbrooke, P. Q.
Jas. Seiveright, M. M. .... Sherbrooke, P. Q.
Quebec & Lake St. John Ry. 4-8½ g. 24 m. 3 lo. 43 c.
J. G. Scott, Manager .... Quebec, Can.
Frank Fournier, Supt. .... St. Raymond, P. Q.
John T. Eames, M. M. .... St. Raymond, P. Q.

R

Raleigh & Augusta Air-Line; Carolina Central.
Raleigh & Gaston R. Rs. 4-8½ g. 436 m. 47 lo. 994 c.
John C. Winder, Gen. Man. & P. A. Raleigh, N. C.
Raleigh Rds. 4-8½ g. 194 m. 21 lo. 563 cars.
B. R. Harding, Supt. of Mach. Raleigh, N. C.
Carolina Cen. R. R. 4-8½ g. 242 m. 26 lo. 431 c.
V. Q. Johnson, Gen. Supt. .. Wilmington, N. C.
James Maglenn, M. of Mach. Laurinburg, N. C.
S. R. Ethridge, M. C. B. .... Laurinburg, N. C.
Rensselaer & Saratoga R. R. (See Del. & Hud. Can. Co.)
Rhinebeck & Connecticut. (See Hart. & Ct. W'n.)
Richmond, Fredericksburg & Potomac R. R.
4-8½ g. 83 m. 14 lo. 137 cars.
E. T. D. Myers, Gen. Supt. .... Richmond, Va.
T. L. Courtney, Asst. Supt. .... Richmond, Va.
H. Kuhn, M. M. .... Richmond, Va.
W. H. Trainham, M. C. B. .... Richmond, Va.
Richmond & Alleghany R. R. 4-9 g. 260 m. 19 lo. 837c.
Decatur Axtell, V. P. & Gen. Man. Richmond, Va.
Geo. W. Agee, Supt. .... Richmond, Va.
M. Sweeney, Pur. Agt. .... Richmond, Va.
Geo. D. Harris, M. M. & C. B. .. Richmond, Va.
Richmond & Danville R. R. Co.'s Roads.
1,718 miles 218 loco. 3,616 cars.
T. M. R. Talcott, Gen. Man. .... Richmond, Va.
J. P. Minetree, Pur. Agt. .... Richmond, Va.
R. D. Wade, Supt. Mo. Po. .... Richmond, Va.
(1) Rich. & Dan. R. R. 5 g. 829 m. 131 lo. 2,480 cars.
Peyton Randolph, As. G. Man. Richmond, Va.
Rich. & Dan. Div.: 5 g. 320 m. 80 lo. 1,797 c.
Wm. H. Green, Supt. .... Richmond, Va.
T. W. Gentry, M. M. .... Richmond, Va.
J. B. Vaughan, For. Car Sh. .. Richmond, Va.
North Carolina Div. 5 g. 223 m. 22 lo. 268 cars.
A. B. Andrews, Supt. .... Raleigh, N. C.
W. H. Turrentine, M. M. Comp'y's Shops, N. C.
J. C. Holt, For. Car Sh. Comp'y's Shops, N. C.
Atlanta & Char. Air Line. 5 g. 286m. 31 lo. 415 c.
Narrow-Gauge Branches. 3 g. 80 m. 5 lo. 37 c.
I. Y. Sage, Supt. .... Atlanta, Ga.
W. A. Walden, M. M. .... Atlanta, Ga.
Z. T. Smith, For. Car Sh. .... Atlanta, Ga.
(2) Charlotte, Col. & Aug. R. R. 5g. 239 m. 22 lo. 287 c.
G. R. Talcott, Supt. .... Columbia, S. C.
J. H. Green, M. M. (2 roads) .. Columbia, S. C.
J. H. Perkins, For. Car Sh. .... Columbia, S. C.

(3) Columbia & Greenville R. R. 5 g. 297 m. 22 l. 218 c.
J. W. Fry, *Supt* .... Columbia, S. C.
J. O Meredith, *For. E. & C. Rep.* .. do.
(4) Virginia Midland Ry. 4-8½ g. 353 m. 41 lo. 631 c.
W. M. S. Dunn, *Eng. & Supt.* Alexandria, Va.
J. E. Waddey, *M. of M.* ...... Alexandria, Va.
J. T Nalls, *M. C. B.* .... Alexandria, Va
Richmond & Petersburg R.R. 4-8½ g. 25 m. 8 lo. 130 c
J. R. Kenly, *Supt* .... Richmond, Va.
John O'Brien, *M. M.* .... Richmond, Va.
Rio Grande R. R. 3-6 g. 22 m. 3 lo. 39 cars.
M. J. Gomila, *Rec. & Gen. Man* Brownsville, Tex.
G. W. Rendall, *M. M.* .... Brownsville, Tex.
M. Markwood, *M. C. B.* .... Brownsville, Tex.
Rochester & Pittsb'g. R.R. 4-8½ g. 134 m. 11 lo. 612 c
Geo. E. Merchant, *Gen. Man.* .. Rochester N. Y.
J. P. Hovey, *M. M.* .... Rochester, N. Y.
Rock Island & Mercer County R. R., and
Rock I'd & Peoria Ry. 4-8½ g. 113 m. 12 lo. 357 c.
R. R. Cable, *V.-P. & Gen. Supt.* Rock Island, Ill.
R. I. & P. Ry.: H. B. Sudlow, *Supt. & P. A.* do.
Joseph Elder, *M. M.* .... Peoria, Ill.
R. I. & M. C. Rd.: B. T. Cable, *Supt.* R'k Island, Ill.
J. H. Parks, *M. M.* .... Rock Island, Ill.
Rome (Ga.) R. R. 5 g. 20 m. 2 lo. 13 cars.
Eben Hillyer, *Supt* .... Rome, Ga.
O. W. Harbin, *M. M. & C. B.* .... Rome, Ga.
Rome, Watertown & Ogdensburg R. R.
4-8½ g. 409 m. 51 lo. 1,400 cars.
E. A. Van Horne, *Gen. Supt* ..... Oswego, N. Y.
Geo. W. B. Cushing, *Pur. Agt.* New York, N. Y.
Geo. H. Haselton, *M. M. & C. B.* . Oswego, N. Y.
Rumford Falls & Buckfield R.R. 4-8½ g. 29 m. 2 l. 42 c.
O. Hayford, *Supt* .... Canton, Me.
O. Spaulding, *Pur. Agt* .... Buckfield, Me.
E. R. Oldham, *M. M.* .... Buckfield, Me.

S

Sabine & East Texas Ry. 4-8½ g. 104 m. 5 lo. 333 c.
R. H. Cousins, *Gen. Supt.* ..... Beaumont, Tex.
W. A. Meagher, *M. M.* .... Beaumont, Tex.
Sacramento & Placerville R. R. 4-8½ g. 49 m. 3 lo. 68 c.
J. B. Wright, *Supt. & P. A.* ... Sacramento, Cal.
A. J. Stevens *M. M.* .... Sacramento, Cal.
Benj. Welch, *M. C. B.* .... Sacramento, Cal.
Saginaw Bay & Northw'n R. R. 4-8½ g. 30 miles.
J. Jackson, *Gen. Man* ...... Pinconning, Mich.
F. T. Lillote, *Act. Pur. Agt.* .. Pinconning, Mich
Edward Keeler, *M. M.* .... Pinconning, Mich.
Saginaw Valley & St. Louis R. R. 4-8½ g. 35 m. 4 l. 64 c
N. W. Merrill, *Supt* .... Saginaw, Mich.
Allan Bourn, *Pur. Agt.* .... Detroit, Mich.
Geo. C. Watrous, *M. M.* .... Iona, Mich.
San Francisco & No. Pac. 4-8½ g. 112 m. 11 lo. 244 c.
Arthur Hughes, *Gen. Man.* . San Francisco, Cal.
H. C. Whiting, *Supt* .... Petaluma, Cal.
M. C. B. .... Donahue, Cal.
Savannah, Florida & W'n Ry. 5 g. 422 m. 50 lo. 695 c.
H. S. Haines, *Gen. Man.* .... Savannah, Ga.
R. G. Fleming, *Supt* .... Savannah, Ga.
F. S. Pendergast, *Eng. & Asst. Supt.* Savannah, Ga.
A. A. Aveilhé, *Pur. Agt* .... Savannah, Ga.
James D. Hollister, *M. of Mach.* . Savannah, Ga.
G. M. D. Riley, *For. Loco. Dept.* .. Savannah, Ga.
Jos. W. Rowell, *For. Car Dept.* Savannah, Ga.
Sav., Griffin & No. Ala. R. R. *Op. by Central (Ga.).*
Schuylkill & Lehigh R. R. 4-8½ g. 43 miles.
Eldredge Dale, *Supt* .... Reading, Pa.
Scoharie Valley R. R. *(See Middleburg & Sch.)*
Scioto Valley R. R. 4-8½ g. 131 m. 15 lo. 460 cars.
Geo Skinner, *Supt* .... Columbus, O
R. Bromley, *M. M. & P. A.* ..... Portsmouth, O.
Seaboard & Roanoke R. R. 4-8½ g. 80 m. 21 lo. 381 c.
E. G. Ghio, *Mast. of Trans.* ... Portsmouth, Va.
M. M. Pendleton, *S. M. P. & M.* Portsmouth, Va.
Shenandoah Valley R. R. 4-8½ g. 143 m. 15 lo. 104 c.
Henry Fink, *Gen. Man* .... Lynchburg, Va.
J. H. Sands, *Supt* .... Roanoke, Va.
W. C. De Armond, *Pur. Agt.* Philadelphia, Pa.
Chas. Blackwell, *Supt. of M. P.* . Roanoke, Va.
W. Welch, *M. M.* .... Roanoke, Va.
Shenango & Allegheny R.R. 4-9½ g. 47 m. 6 lo. 156 c
J. T. Blair, *G. Supt. & Pur. Agt.* Greenville, Pa.
Edw. Richardson, *M. M. & C. B.* Greenville, Pa.
Shepaug R. R. 4-8½ g. 38 m. 3 lo. 27 cars.
Edwin McNeill, *Supt* .... Litchfield, Ct.
C. M. Allen, *M. M.* .... Litchfield, Ct.
Ship Is., Ripley & Ky. R. R. 3 g. 25 m. 2 lo. 23 cars.
C. L. Harris, *Supt. & Pur. Agt.* ... Ripley, Miss.
W. H. Phelps, *M. M.* .... Ripley, Miss.
Sioux City & Pacific R. R. 4-8½ g. 427 m. 21 lo. 594 c.
P. E. Hall, *Gen. Man. & P. A.* Cedar Rapids, Ia.
C. M. Lawler, *Gen. Supt.* ... Missouri Valley, Ia.
J. S. Wattles, *Supt.* ...... Missouri Valley, Ia.
C. F. McCoy, *Asst. Supt* .... Blair, Neb.
S. A. Teal, *M. M.* .... Missouri Valley, Ia.
W. H. Ramseyer, *M. C. B.* .. Missouri Valley, Ia.
Sodus Bay & Southern Ry. 4-8½ g. 34 m. 4 lo. 40 c.
S. B. Stuart, *Supt. & Pur. Agt.* Sodus Point, N. Y.
C. H. Hill, *M. C. B.* .... Sodus Point, N. Y.
South Carolina Ry. 5 g. 243 m. 42 lo. 685 cars.
John B. Peck, *Gen. Man.* ...... Charleston, S. C.
S. B. Pickens, *Pur. Agt* .... Charleston, S. C.
P. J. Cochrane, *Mast. of Mach.* Charleston, S. C.
Geo. H. Gramling, *M. C. B.* ... Charleston, S. C.
South-Eastern Ry. 4-8½ g. 260 m. 26 lo. 826 cars.
Bradley Barlow, *Gen. Man.* ..... Montreal, Can
T. A. McKinnon, *Asst. Man.* .... Montreal, Can.
H. A. Alden, *Supt* .... Richford, Vt.
A. G. Eastman, *M. M.* .... Richford, Vt.
South Florida R. R. 3 gauge 40 m. 4 lo. 20 cars.
B. R. Swoope, *Supt. & P. A.* ..... Sanford, Fla.
C. C. Haskell, *Pur. Agt* .... Sanford, Fla.
J. A. Campbell, *M. M.* .... Sanford, Fla.
A. D. Stentiford, *M. C. B.* .... Sanford, Fla.
South Mountain R. R. 4-8½ g. 18 m. 4 lo. 22 c.
W. H. Woodward, *Supt.* Pine G've Furnace, Pa.
South Pacific Coast R. R. 3 g. 81 m. 10 lo. 260 cars.
A. H. Fracker, *Gen. Supt.* . San Francisco, Cal.
G. H. Waggoner *Pur. Agt.* . San Francisco, Cal.
E. L. Reese, *M. M. & C. B.* ..... Newark, Cal.
South-Western R. R. (Ga.) *(See Central of Ga.)*
South-Western Ry. (Ky.) 4-8½ g. 4 m. 1 lo. 38 cars.
J. M. Wilson, *Supt* .... Harrodsburg, Ky.
J. Tomlinson, *Pur. Agt* ..... Harrodsburg, Ky.
Southern Central R. R. 4-8½ g. 115 m. 16 lo. 447 c.
James G. Knapp, *Supt. & Pur. Agt.* Auburn, N. Y.
Chas. G. Brown, *M. M.* .... Auburn, N. Y.
H. Mooney, *M. C. B.* .... Auburn, N. Y.
Southern Maryland R. R. 4-8½ g. 20 m. 1 lo. 5 c.
Robert Knight, *Supt.* .... Brandywine, Md.
C. R. Joyce, *M. M.* .... Brandywine, Md.
Southern Pacific R. R. 4-8½ g. 198 m. 30 lo. 728 c.
Northern Div. *(For other Divs. see Cen. Pac.)*
A. C. Bassett, *Supt* .... San Francisco, Cal.
J. R. Watson, *Pur. Agt* .... Sacramento, Cal.
J. T. Wilson, *M. M.* ...... San Francisco, Cal.
F. N. Bellisle, *M. C. B.* ... San Francisco, Cal.
Springfield, Effingham & So.-E. and Bloomfield Rys.
3 g. 89 m.
W. C. Lyon, *Gen. Man. & Pur. Agt.* Robinson, Ill.
J. S. Pickering, *M. M. & C. B.* ... Effingham, Ill.

Spring Hill & Parrsboro Ry. 4-8½ g. 32 m. 1 lo. 64 c.
J. A. Killam, *Gen. Man.* .... Parrsboro, N. S.
K. McKinnon, *M. M.* .... Parrsboro, N. S.
St. Croix & Penobscot R. R. 4-8½ g. 22 m. 4 lo. 195 c.
S. W. Haycock, *Supt. & Pur. Agt.* . Calais, Me.
G. H. Corsen, *M. M.* .... Milltown, Me.
H. C. Tincker, *M. C. B.* .... Milltown, Me.
St. John & Maine Ry. 4-8½ g. 92 m. 9 lo. 146 cars.
H. D. McLeod, *Supt. & P. Agt.* .. St. John, N. B.
Andrew Davis, *M. M.* .... St. John, N. B.
St. John's Ry 4-8½ g. 14½ m. 2 lo. 24 cars.
R. McLaughlin, *Pr. & Supt.* Jacksonville, Fla.
Geo. Ferro, *M. of Mach.* .... Tocoi, Fla.
St. Johnsb'ry & Lake Champ 4-8½ g. 120 m 10 lo. 297 c.
A. B. Jewett, *Supt. & P. A.* . St. Johnsbury, Vt.
Geo. E. Howe, *M. M. & C. B.* St. Johnsbury, Vt.
St. Joseph & Des Moines R. R. *(See K. C., St. J. & C. B.)*
St. Lawrence & Ottawa Ry, 4-8½ g. 59 m. 10 l. 146 c.
Archer Baker, *Gen. Supt* .... Montreal, Ont.
R. Blackwell, *Mech. Supt* ...... Montreal, Ont.
St. Louis, Alton & Terre Haute R. R.
Main Line. *(See Ind. & St. L. Div.; Ohio Ry.)*
St. Louis & Cairo Div.: 4-8½ g. 137 m. 17 lo. 778 c.
G. W. Parker, *Gen. Man* ...... St. Louis, Mo.
J. L. Hinckley, *Supt* .... Belleville, Ill.
A. M. De Clerq, *M. M.* .... St. Louis, Mo.
St. Louis Bridge Co. and Tunnel R. R.
4-8½ g. 27 m. 18 lo. 11 cars.
Wm. Taussig, *Gen. Man* .... St. Louis, Mo.
A. W. Dickinson, *Supt* .... St. Louis, Mo.
J. E. Williams, Jr., *Pur. Agt.* ... St. Louis, Mo.
H. M Smith, *M. M.* .... St. Louis, Mo.
St. Louis Coal R. R. 4-8½ g. 28 m. 1 lo. 78 cars.
Jas. Prentice, *Supt* .... Carbondale, Ill.
Jas. C. Bryden, *Pur. Agt.* ...... St. Louis, Mo.
St. Louis, Ft. Scott & Wichita R. R. 4-8½ g. 20 miles.
F. Tiernan, *V. P. & Gen. Man.* Fort Scott, Kan.
J. W. Miller, *Supt* .... Fort Scott, Kan.
Henry Berger, *M. M.* .... Ft. Scott, Kan.
A. A. Tiddell, *M. C. B.* .... Ft. Scott, Kan.
St. L., Hannibal & Keokuk. 4-8½ g. 85 m. 5 lo. 65 c.
W. W. Walker, *Gen. Supt* .... Hannibal, Mo.
Geo. Douglass, *Pur. Agt.* .... Hannibal, Mo.
St. Louis, Iron Mt. & So'n Ry. *(See Mo. Pacific Ry.)*
St. L. Keokuk & No.-W'n. 4-8½ g. 187 m. 14 lo. 312 c.
R. Law, *Gen. Supt.* .... Keokuk, Ia.
G. B. Harris, *Pur. Agt.* .... Chicago, Ill.
Wm. H. Bartlett, *M. M.* .... Keokuk, Ia.
St. L., Salem & Little Rock. 4-9 g. 69 m. 5 lo. 103 c
H. A. Crawford, *V. Pr. & P. A.* ... St. Louis, Mo.
E. B. Sankey, *Supt* .... Salem, Mo.
Thomas Everson, *M. M.* .... Steelville, Mo.
J. W. Houston, *M. C. B.* .... Steelville, Mo.
St. L., Van. & T. H. *(See T. H. & I. Div. of Penna. Co.)*
St. Louis & Cairo R. R. 3 g. 152 m. 22 lo. 896 cars.
Chas. Hamilton, *Gen. Supt.* .... St. Louis, Mo.
R. M. Pringle, *M. M.* .... St. Louis, Mo.
St. L. & San Fran. Ry. 4-8½ g. 854 m. 80 lo. 2,700 c.
C. W. Rogers, *V. P. & Gen. Man.* St. Louis, Mo.
D. H. Nichols, *Mast. Tran.* . No. Springfield, Mo.
A. G. Thompson, *Pur. Agt* ...... St. Louis, Mo.
M. Kearney, *M. M. & C. B.* . No. Springfield, Mo.
Mo. & Ark. Div.: W. A. Thoms, *Supt.* do.
Kan. Div.: J. R. Wentworth, *Supt.* Neodesha, Kan.
St. Martin's & Upham Ry. 4-8½ g. 30 m. 2 lo. 8 cars.
A. E. Killam, *Manager* .... St. Martin s, N. B.
St. Paul, Minneapolis & Manitoba Ry.
4-8½ g. 1,125 m. 168 lo. 4,331 cars.
A. Manvel, *Gen. Man* .... St. Paul, Minn.
S. R. Stimson, *Gen. Supt.* ...... St. Paul, Minn.
E. B. Wakeman, *Asst. Gen. Supt.* St. Paul, Minn.
J. C. Morrison, *Pur. Agt* .... St. Paul, Minn.
H. Middleton, *M. M. & C. B.* ... St. Paul, Minn.
Breck. Div.: A. Guthrie, *Supt.* . St. Paul, Minn.
F. F. Div.: J. B. Rice, *Supt.* ...... St. Paul, Minn.
No'n Div.: D. K. Smith, *Supt.* ... Crookston, Minn.
St. Paul & Duluth R. R. 4-8½ g. 196 m 24 lo. 580 c.
H. P. Breed, *Asst. Gen. Supt.* ... St. Paul, Minn.
J. G. Callahan, *Pur. Agt* .... St. Paul, Minn.
W. McFarland, *M. M.* .... St. Paul, Minn.
John Hill, *M. C. B.* .... St. Paul, Minn.
Sterling Mountain Ry. 6 g. 8 m. 2 lo. 145 cars.
J. C. Missimer, *Supt* .... Sloatsburg, N. Y.
Syracuse, Binghamton & N. Y. R. R. *(See D. L. & W.)*
Syracuse, Chenago & N. Y. 4-8½ g. 44 m. 4 lo. 60 c.
Albert Allen, *Supt* .... Syracuse, N. Y.
George W. West, *M. M.* .... Syracuse, N. Y.
Wm. J. McMichael, *M. C. B.* ... Syracuse, N. Y.
Syracuse, Geneva & Corning; Corning, Cowanasque & Antrim R. Rs. 4-8½ g. 121 m. 28 lo. 1,044 c.
A. H. Gorton, *Supt* .... Corning, N. Y.
W. E. Gorton, *Asst. Supt* .... Corning, N. Y.
Andrew Beers, *Pur. Agt.* ...... Corning, N. Y.
O. C. Patchell, *M. M.* .... Corning, N. Y.
C. J. Butler, *M. C. B.* .... Corning, N. Y.

T

Terre Haute & So.-Eastern Ry. 4-9 g. 40 miles.
Geo. Atherton, *Supt* ...... Terre Haute, Ind.
Texas-Mexican; and Mexican National Rys.
3 g. 333 m. 28 lo. 600 cars.
G. C. Gardner, *Gen. Man* .... New York, N. Y.
R. C. Peebles, *Supt* .... Mexico, Mex.
J. Dougherty, *Pur. Agt* .... New York, N. Y.
No. Div.: F. A. Lister *G. M.* . Corpus Christi, Tex.
P. J. Milan, *M. M. & C. B.* do.
Mex. Nat. Ry.: J. C. Monroe, *M. M.* . Mexico, Mex.
Jno. Scullen, *Gen. Man* .... Mexico, Mex.
Texas Western Ry. 3 g. 42 m. 2 lo. 34 cars.
E. L. Heriot, *Gen. Man.* ...... Houston, Tex.
J. W. Goodwin, *Supt* .... Houston, Tex.
T. F. Glispin, *M. M.* .... Houston, Tex.
Texas & New Orleans; Louisiana W'n R. Rs.
4-8½ g. 217 m. 25 lo. 900 c.
A. N. Towne, *Gen. Man* .... Houston, Tex.
P. B. Watson, *Pur. Agt* .... Houston, Tex.
C. A. Burton, *Supt* .... Houston, Tex.
D. C. Smith, *M. M.* .... Houston, Tex.
J. M. Mather, *M. C. B.* .... Houston, Tex.
Texas & Pacific. *(See Mo. Pac. Ry.)*
Texas & St. Louis Ry. 3 g. 304 m. 19 lo. 338 cars.
G. W. Ristine, *Gen. Man* ...... St. Louis, Mo.
J. B. Van Dyne, *Gen. Supt* .... Tyler, Tex.
F. W. Paramore, *Pur. Agt* ..... St. Louis, Mo.
L. B. Fish, *Pur. Agt* .... Tyler, Texas.
W. J. Lewis, *M. M. & C. B.* .... Tyler, Tex.
Tioga and Elmira State Line R. Rs.
4-8½ and 6 g. 54 m. 17 lo. 953 cars.
L. H. Shattuck, *Supt* .... Blossburg, Pa.
J. A. Hardenburg, *Pur. Agt.* New York, N. Y.
Pere Bonny, *M. M.* .... Blossburg, Pa.
D. H. Stratton, *M. C. B.* ...... Blossburg, Pa.
Toledo, Ann Ar. & Gr. Tr. Ry. 4-8½ g. 84 m. 9 lo. 150 c.
J. M. Ashley, *Gen. Man* ...... Ann Arbor, Mich.
H. W. Ashley, *Supt. & Pur. Agt.* do
C. C. Dodge, *M. M.* .... Ann Arbor, Mich.
Toledo, Cin. & St. Louis R. R. 3 g. 465 m. 63 lo. 2,200 c.
T. A. Phillips, *Gen. Man* .... Toledo, O.
J. H. F. Wiers, *Supt. Mach. & P. Agt* Toledo, O.
Toledo Div.: W. N. Moffatt, *Supt.*; and
J. G. Clifford, *M. M.* .... Delphos, O.
C. H. Mead, *Gen. M. C. B.* ...... Delphos, O.
S.-E'n & Dayton Div.: D. T. Bacon, *Supt.* Dayton, O.
L. Parisoe, *M. M.* .... Dayton, O.

Tonawanda Valley & Cuba and Bradford, Eldred & Cuba R. Rs. 3 g. 19 m. 1 lo. 13 cars.
Supt. & Pur. Agt ..... Cuba, N. Y.
Toronto, Grey & Bruce Ry. 4-8½ g. 191 m 20 lo 446 c.
Edmund Wragge, *Gen. Man.* ... Toronto, Can.
W. Watson, *Pur. Agt* .... Toronto, Can.
David Preston, *M. M.* .... Toronto, Can.
Troy & Boston R. R. 4-8½ g. 48 m. 20 lo. 484 cars.
D. Robinson, *Pres. & Pur. Agt.* ..... Troy, N. Y.
Joseph Crandell, *Supt* .... Troy, N. Y.
Z. B. Davis, *M. M.* .... Troy, N. Y.
R. V. Coon, *M. C. B.* .... Troy, N. Y.
Tuckerton R. R. 4-8½ g. 31 m. 2 lo. 28 cars.
J. J. Pharo, *Supt* .... Tuckerton, N. J.

U

Ulster & Delaware R. R. 4-8½ g. 74 m. 10 lo. 214 cars.
Jas. H. Jones, *Supt* .... Rondout, N. Y.
Joseph Rush, *M. M.* .... Rondout, N. Y.
John H. Decker, *M. C. B.* .... Rondout, N. Y.
Union Pacific Ry. (4 Gen. Divs.)
3 & 4-8½ g. 4,270 m 318 lo. 6,157 cars.
S. H. H. Clark, *Gen. Man* .... Omaha, Neb.
Thos. L. Kimball, *Asst. Gen Man.* Omaha, Neb.
M. H. Goble, *Pur. Agt* .... Omaha, Neb.
I. H. Congdon, *Gen. M. M.* .... Omaha, Neb.
Geo. E. Stevens, *Supt. Car Dept.* Omaha, Neb.
(1) Neb. Div.: P. J. Nichols, *Gen. Supt.* . Omaha, Neb.
Robt. McConnell, *M. M.* ...... Omaha, Neb.
A. M. Collett, *M. C. B.* .... Omaha, Neb.
Jas. H. McConnell, *M. M.* .... No. Platte, Neb.
A. Reis, *For. Car. Sh.* .... No. Platte, Neb.
T. A. Davies, *M. M.* .... Cheyenne, Wy. T.
J. E. Davies, *For. Car. Sh.* . Cheyenne, Wy. T.
(2) Col. Div.: A. A. Egbert, *Gen. Supt* .... Denver, Col.
Fred. Metzheimer, *M. M.* .... Golden Col.
E. G. Thomas, *For. Car. Sh.* ..... Golden, Col.
D. & S. P. Div.: J. H. Kirk, *M. M.* ... Denver, Col.
(3) Wy. Div.: Edw. Dickinson, *G. Supt.* Laramie, Wy. T.
R. Galbraith, *M. M.* ..... Laramie, Wy. T.
R. M. Galbraith, *M. M.* ...... Rawlins, Wy. T.
Frank Blake, *For. Car. Sh.* .. Rawlins, Wy. T.
Geo. F. Chapman, *M. M.* .... Evanston, Wy. T.
R. V. Brinkley, *For. Car. Sh.* Evanston, Wy. T.
Idaho Div.: W. B. Doddridge, *Gen. Supt.* Ogden, U.
R. Craft, *M. M.* .... Logan, U.
F. Reardon, *M. M.* .... Eagle Rock, Idaho.
F. M. Shoemaker, *For. Car. Sh.* Eagle R'k, Ida.
(4) Kansas Div.: S. T. Smith, *G. Supt.* Kansas C'y, Mo.
Jno. Mackenzie, *Supt. Mach.* Armstrong, Kan.
T. B. Roberts, *M. C. B.* . Armstrong, Kan.
K. Val. Div.: J. O. Brinkerhoff, *Supt.* Kan. C'y, Mo.
Jas. Mackenzie, *M. M.* .... Armstrong, Kan.
Smoky Hill & Denver Divs.:
O. H. Dorrance, *Supt* .... Wallace, Kan.
J. B. Dailey, *M. M.* (S. H. Div.) ..... Ellis, Kan.
Chey. Div.: A. A. Egbert, *Supt* .... Denver, Col.
R. McDougall, *M. M.* (D. & C. Divs.) Denver, Col.
W. Ogle, *For. Car. Sh.* (D. & C. Divs.) do.
(5) St. J. & W'n. Rd.: L. D. Tuthill, *Supt.* St. Joseph, Mo.
E. Sleppy, *M. M.* .... Grand Island, Neb.
E. Hansen, *For. Car. Sh.* ...... Elwood, Kan.
(6) Kan. Cen. Div.: 3 g. 150 miles.
W. J. Kelley, *Supt.* ..... Leavenworth, Kan.
And. Goldthwaite, *M. M.* . Leavenworth, Kan.
J. P. Newman, *M. C. B.* Leavenworth, Kan.
(7) Nevada Central Ry. 3 g. 93 m. 5 lo. 82 cars.
F. W. Dunn, *Supt* .... Battle Mountain, Nev.
Z. T. Spriggs, *M. M.* .... Battle Mountain, Nev.
United States Rolling Stock Co. 23 lo. 4,834 cars.
A. Hegewisch, *Pres* .... New York, N. Y.
C. F. Jauriet, *Gen. M. M.* .... Chicago, Ill.
W. H. Chaddock, *Pur. Agt* .... Chicago, Ill.
Utah Central Ry. 4-8½ g. 280 m.
John Sharp, *Gen. Supt.* .. Salt Lake City, Utah.
S. H. Hill, *Pur. Agt.* ..... Salt Lake City, Utah.
W. B. Armstrong, *M. M.* . Salt Lake City, Utah.
Peter Reid, *M. C. B.* ...... Salt Lake City, Utah.
Utah & Nevada Ry. 3 g. 37 m.
W. W. Ritter, *Gen. Man.* .. Salt Lake City, Utah.
Robert Anderson, *M. M.* .. Salt Lake City, Utah.
Utah & Pleasant Valley Ry. 60 m.
G. M. Young, *Man* .... Salt Lake City, Utah.
Utica, Ithaca & Elmira Ry. 4-8½ g. 120 m. 11 lo. 152 c.
C. R. Fitch, *Supt* .... Elmira, N. Y.
Geo. W. Cleveland, *M. M.* .... Breesport, N. Y.
C. J. Howe, *M. C. B.* .... Breesport, N. Y.
Utica, & Black Riv. R. R. 4-8½ g. 180 m. 22 lo. 329 c.
J. F. Maynard, *Gen. Supt. & P. A.* Utica, N. Y.
John Bailey, *M. M.* .... Utica, N. Y.
David James, *M. C. B.* .... Utica, N. Y.

V

Vaca Vall. & Clear Lake R. R. 4-8½ g. 30 m. 2 lo. 19 c.,
G. B. Stevenson, *Gen. Supt.* .. Vacaville, Cal.
Valley Ry. 4-8½ g. 59 m. 10 lo. 317 cars.
J. E. Tusk, *Supt. & P. Agt* .... Cleveland, O.
Chas. Blanchard, *M. C. B.* ..... Cleveland, O.
Vernon, Greensburg & Rushville R. R. 25 m.
Horace Scott, *V.-Pres* .... Greensburg, Ind.
Virginia Midland Ry. *(See Rich. & Dan.)*
Virginia & Truckee R. R. 4-8½ g. 54 m. 17 lo. 375 c.
Carson & Colorado R. R. 3 g. 158 m. 4 lo. 76 c
H. M. Yerington, *Gen. Supt.* .. Carson, Nev.
R. J. Laws, *Supt.* (C. & Col.) ...... Carson, Nev.
C. P. Mason, *Pur. Agt* .... Carson, Nev.
I. N. Fording, *M. M.* .... Carson, Nev.
B. F. Lyon, *M. C. B.* .... Carson, Nev.

W

Wabash, Chester & W'n R. R. 4-8½ g. 42 m. 2 lo. 32 c
J. L. Hinckley, *Gen. Supt* .... Chester, Ill
Wabash, St. Louis & Pacific Ry. (3 Gen. Divs.)
4-8½ g. 3,241 m. 598 lo. 17,230 cars.
John C. Gault, *2d V. P.* .... St. Louis, Mo.
Robert Andrews, *Gen. Supt* ..... St. Louis, Mo.
W. S. Lincoln, *Pur. Agt.* .... St. Louis, Mo.
Jacob Johann, *Gen. M. M.* ...... Springfield, Ill.
U. H. Kohler, *Gen. M. C. B.* .... Toledo, O.
(1) Eas'n Div.: J. B. Barnes, *M. M.* Fort Wayne, Ind.
Oh. & Ind. Div.: G. W. Stevens, *Supt.* Ft. Wayne, Ind.
Peru Div.: E. C. Murphy, *Supt.* ...... Peru, Ind.
John McKenna, *M. M.* .... Peru, Ind.
Cairo Div.: D. G. Moore, *Supt* ...... Cairo, Ill.
W. S. Morris, *M. M.* .... Carmi, Ill
(2) Middle Div.: R. M. Hemphill, *M. C. B.* Peoria, Ill
Ill. Div.: H. F. Clark, *Supt* .... Springfield, Ill.
B. B. Rose, *M. C. B.* .... Decatur, Ill.
Chicago Div.: E. N. Armstrong, *Supt.* Chicago, Ill.
Peoria Div.: F. L. Tomkins, *Supt* .... Peoria, Ill
Rant'l Div.: B. F. Mathias, *Supt.* .... Rantoul, Ill
J. McCarthy, *M. M.* .... Rantoul, Ill.
(3) Western Div.: W. H. Selby, *M. M.* .. Moberly, Mo.
C. S. Buck, *M. C. B.* .... Moberly, Mo
Missouri Div.: R. S. Miner, *Supt.* .. Moberly, Mo.
C. B. & O. Div.: J. W. Blanchard, *Supt.*; and
J. S. Hazen, *M. C. B.* .... Stanberry, Mo.
Quincy Div.: F. D. Schermerhorn, *S.* . Quincy, Ill.
Iowa Div.: E. Dresser, *Supt* .... Keokuk, Ia
D. Moin. Div.: H. B. Skeele, *Supt.* . Des Moines, Ia
Walla Walla & Columbia Riv. R. R. *(See Ore. Ry)*
Walkill Ry. *(See N. Y., West. Sh. & B.*
Washington & Western R. R. 4-8½ g. 52 m. 5 lo. 83 c.
H. McLean, *Gen. Supt* ...... Alexandria, Va.
Edward Dunn, *M. M.* .... Alexandria, Va.
John Harrison, *M. C. B.* .... Alexandria, Va.

Waynesburg & Washington Rd. 3 g. 28 m. 3 lo. 15 c.
C. E. Bower, *Supt* .... Waynesburg, Pa.
A. M. Kline, *M. C. B.* .... Waynesburg, Pa.
Welland Ry. 4-8½ g. 25 m. 3 lo. 147 cars
William Pay, *Supt* .... St. Catharines, Ont
Jas. Taylor, *M. M.* .... St. Catharines, Ont
Wm. H. Pay, *M. C. B.* ...... St. Catharines, Ont
West End Narrow Gauge Ry. 3 g. 16 m
Rolla Wells, *Supt* .... St. Louis, Mo
M. M. Hodgman, *M. M.* .... Florissant, Mo.
West Feliciana R. R. 4-8½ g. 27 m. 2 lo. 22 cars
J. B. McGehee, *Pr. & Gen. Supt.* Bayou Sara, La
J. A. Tilton, *M. M. & C. B.* .... Bayou Sara, La
West Virginia, Central & Pittsb'g Ry. 13 m. 3 lo. 19 c.
W. E. Porter, *Gen. Supt* ..... Piedmont, W. Va
W. T. Blackiston, *Pur. Agt* .... Piedmont, W. Va.
E. W. Lippencott, *M. M. & M. C. B.* Piedmont
Western R. R. (of Ala.) 5 g. 88 m. 15 lo. 270 cars.
Atlanta & W. Point Rd. 5 g. 87 m. 14 lo. 20. c.
Cecil Gabbett, *Gen. Man. & Supt.* .. Mont., Ala.
C. D. Wall, *M. M.* .... Montgomery, Ala.
F. M. Wade, *M. C. B.* .... Montgomery, Ala.
Western Counties' Ry. 4-8½ g. 67 m. 8 lo. 137 cars.
J. Brignell, *Supt.* .... Yarmouth, N. S.
Western Maryland R. R. 4-8½ g. 157 m. 16 lo. 394 c
J. M. Hood, *Pr. & Gen. Man.* .... Baltimore, Md.
R. J. Adair, *Pur. Agt.* .... Baltimore, Md.
David Holtz, *Mast. of Mach.* Union Bridge, Md.
J. H. Nussear, *M. C. B.* ...... Union Bridge, Md.
Western No. Carolina R. R. 5 g. 155 m. 6 lo. 36 c.
V. E. McBee, *Supt* .... Salisbury, N. C.
Jos. P. Minetree, *Pur. Agt.* ...... Richmond, Va.
G. W. Gates, *M. M.* .... Salisbury, N. C.
Western & Atlantic R. R. 5 g. 138 m. 48 lo. 952 c.
R. A. Anderson, *Gen. Supt* .... Atlanta, Ga.
A. B. Bostwick, *Asst. Supt* .... Atlanta, Ga.
W. R. Webster, *Pur. Agt* .... Atlanta, Ga.
John H. Flynn, *M. M. & C. B.* .... Atlanta, Ga.
Wheeling & Lake Erie R. R. 168 miles.
C. R. Griggs, *Lessee & Manager* .... Toledo, O.
M. D. Woodford, *Gen. Supt* ...... Toledo, O.
L. James, *Gen. M. M.* .... Norwalk, O.
White Water R. R. *(See Ft. W., Cin. & Lou.)*
Wilmington & No'n R. R. 4-8½ g. 77 m. 13 lo. 148 c.
J. H. Thompson, *Supt. & P. A.* . Coatesville, Pa.
George Rommel, *M. M.* .... Coatesville, Pa
Alex. Maitland, *M. C. B.* ...... Coatesville, Pa
Wilmington & Weldon; Northeastern; S. C. Central; Cheraw & Darlington; Cheraw & Salisbury; and Wilmington, Columbia & Augusta R. Rs.
5 g. 599 miles 70 locomotives 1,120 cars.
R. R. Bridgers, *Gen. Man.* ... Wilmington, N. C.
J. F. Divine, *Gen. Supt.* ...... Wilmington, N. C.
John Bisset, *M. M.* .... Wilmington, N. C.
W. H. Day, *M. C. B.* .... Florence, S. C.
C. R. Clowe, *M. C. B.* (W. & W.). Wilmington, N. C.
Windsor & Annapolis Ry. 4-8½ g. 130 m. 10 lo. 156 c.
P. Innes, *Gen. Man* .... Kentville, N. S.
Wm. Yould, *M. M.* .... Kentville, N. S.
Wm. Grierson, *M. C. B.* .... Kentville, N. S.
Wisconsin Central R. R. 4-8½ g. 480 m. 49 lo. 1 608 c.
F. N. Finney, *Gen. Man* .... Milwaukee, Wis.
W. E. Carroll, *Gen. Supt.* .... Milwaukee, Wis.
G. Campbell, *Pur. Agt* .... Milwaukee, Wis.
J. B. Henney, *Supt. M. P. & M.* . Stevens Pt., Wis.
Mil. & E'n Divs.: A. A. Allen, *S.* . Milwaukee, Wis.
W. & No. Div.: C. R. Hanchett, *S.* Stevens Point, Wis.
Worcester & Nashua; and Nashua & Rochester R. Rs.
4-8½ g. 95 m. 20 lo. 505 cars.
C. S. Turner, *Pres. & G. Man.* Worcester, Mass.
G. W. Hurlburt, *Supt* .... Worcester, Mass.
John G. Brady, *M. M. & C. B.* Worcester, Mass.
Worcester & Shrewsbury R. R. 3 g. 3 miles.
Worcester & Somerset R. R. 4-8½ g. 10 m. 1 lo. 4 c.
J. J. Coburn, *Supt* .... Worcester, Mass.
G. E. Hapgood, *Pur. Agt.* ... Worcester, Mass.
Chas. Cleveland, *M. M.* .... Worcester, Mass.

Y

York & Peach Bottom Ry. 3 g. 39 m. 4 lo. 62 c.
S. M. Manifold, *Supt. & Pur. Agt.* .... York, Pa
S. J. Williams, *M. M.* .... York, Pa.
Youghiogheny R. R. 4-9 gauge.
Wm. Wilson, *Supt* .... Irwin's, P.

NATIONAL CAR BUILDER SUPPLEMENT

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At the request of prominent Railroad officials and others, we commenced two years ago the compilation of accurate lists of the American Manufacturers of Railroad Rolling Stock and Materials, published them in the form of a Supplement to the NATIONAL CAR BUILDER, and distributed it gratuitously to every official in the Purchasing and Mechanical Departments of every Railroad in the United States, Canada, Mexico, Central and South America, West Indies, Australia, New Zealand, and such other foreign countries as could buy Railroad Material in the United States with advantage. Although the undertaking involved an amount of labor and expense that was not anticipated, the outlay was fully warranted by the very flattering reception it received by Railroad men and the business community generally.

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All the Rail Mills of the country.

Complete lists of the Street Railroads in the United States and Canada, their Gauge, Weight of Rail, Mileage, number of Cars and Horses, Officers' Names and Addresses.

The Railroads (both Steam and Street) in Mexico, Central and South America, the West Indies, Australia, New Zealand, with the Gauge, Weight of Rail, Mileage, number of Cars and Locomotives, Officers' Names and Addresses, &c.

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Baldwin Locomotive Works, Philadelphia, Pa.
Baltimore Car Wheel Co., Car Wheels, Baltimore, Md.
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Brill, J. G. & Co., Cars, Philadelphia, Pa.
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Chilled Car Wheel Grinding Co., Chicago, Ill.
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Congdon Brake Shoe Co., Chicago, Ill.
Curran & Wolff, Lumber Dryers, Chicago, Ill.
Detroit Car Spring Co., Detroit, Mich.
Devoe, F. W. & Co., Paints and Varnishes, New York, N. Y.
Fairbanks & Co., Scales, New York, N. Y.
Fay, J. A. & Co., Wood Working Machinery, Cincinnati, O.
French, A. & Co., Car Springs, Pittsburgh, Pa.
French Spiral Spring Co., Car Springs, Pittsburgh, Pa.
Globe Ventilator Co., Ventilators, etc., Troy, N. Y.
Goodell & Waters, Wood Working Machinery, Philadelphia, Pa.
Hancock Inspirator Co., Injectors, etc., Boston, Mass.
Harper, E. L. & Co., Pig Iron, Cincinnati, O.
Hathaway & Robison, Street Railway Contractors, Cleveland, O.
Hopkins, D. A., Journal Bearings, New York, N. Y.
Howard, James L. & Co., R. R. Supplies, Hartford, Conn.
Heimbacher Forge and Rolling Mill Co., St. Louis, Mo.
Iron Clad Paint Co., Metallic Paints, Cleveland, O.
Jones Car Manufacturing Co., Cars, Schenectady, N. Y.
Long & Co., Vulcan Forge & Iron Works, Axles, etc., Pittsburgh, Pa.
Maher & Brayton, Car Wheels, Cleveland, Ohio.
Meeker, A. B. & Co., Pig Iron, Chicago, Ill.
Midvale Steel Co., Axles, etc., Philadelphia, Pa.
Nashua Iron & Steel Co., Axles, etc., Nashua, N. H.
Nathan & Dreyfus, Injectors, etc., New York, N. Y.
National Car Spring Co., Car Springs, New York, N. Y.
Northwestern Horse Nail Co., Horse Nails, Chicago, Ill.
Penfield Block Co., Tackle Blocks, Lockport, N. Y.
Porter, H. K. & Co., Locomotives, Pittsburgh, Pa.
Ramapo Wheel & Foundry Co., Car Wheels, Ramapo, N. Y.
Rogers, C. B. & Co., Wood Working Machinery, Norwich, Conn.
Stephenson, John, Co., Street Cars, New York, N. Y.
Sweet's Manufacturing Co., Toe Calks, etc., Syracuse, N. Y.
Union Brass Manufacturing Co., Car Trimmings, etc., Chicago, Ill.
Valentine & Co., Varnishes, New York, N. Y.
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